(fill—in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved. OMB No. 2040-0086 Approval expires 7-31-8

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

F I L D 0 4 4 2 3 1 4 7 0

LABEL ITEMS

I. EPA I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

RECEIVED
SEP 27 1999
Environmental Protection Agency
WPC - Permit Log In

GENERAL INSTRUCTIONS

If a preprinted label has been provided, aff it in the designated space. Review the infor ation carefully; if any of it is incorrect, cro through it and enter the correct data in t appropriate fill—in area below. Also, if any the preprinted data is absent *(the area to t left of the label space lists the informatio that should appear)*, please provide it in t proper fill—in area(s) below. If the label complete and correct, you need not comple Items I, III, V, and VI *(except VI-B whi must be completed regardless)*. Complete a items if no label has been provided. Refer the instructions for detailed item descri tions and for the legal authorizations und which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold—faced terms.

SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACH
A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.**? (FORM 2A)		X		B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.**? (FORM 2B)		X	
C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)	X		X	D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge** to waters of the U.S.? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)		X		F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X		J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP C R A W F O R D G E N E R A T I N G S T A T I O N

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*
2 L O R I N D A M L A M B C O M P L I A N C E D I R .	3 1 2 | 3 9 4 | 3 4 2 1

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

3 1 0 S O U T H D E A R B O R N 3 5 F N W

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 C H I C A G O	I L	6 0 6 0 3

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

5 3 5 0 1 S O U T H P U L A S K I R O A D

B. COUNTY NAME

C O O K

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE *(if known)*
6 C H I C A G O	I L	6 0 6 2 3	

CONTINUED FROM THE FRONT

VII. SIC CODES (4-digit, in order of priority)

A. FIRST	B. SECOND
7 4911 (specify) ELECTRICAL GENERATING & DISTRIBUTION	7 (specify)
C. THIRD	**D. FOURTH**
7 (specify)	7 (specify)

VIII. OPERATOR INFORMATION

A. NAME

8 COMMONWEALTH EDISON COMPANY

B. Is the name listed in Item VIII-A also owner? [X] YES [ ] NO

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)

F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC (other than federal or state)
O = OTHER (specify)

P (specify)

D. PHONE (area code & no.)

A 312 394 3422

E. STREET OR P.O. BOX

10 SOUTH DEARBORN, 35FNW

F. CITY OR TOWN

8 CHICAGO

G. STATE IL

H. ZIP CODE 60603

IX. INDIAN LAND

Is the facility located on Indian lands? [ ] YES [X] NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water)	D. PSD (Air Emissions from Proposed Sources)
9 N IL0002186	9 P
B. UIC (Underground Injection of Fluids)	**E. OTHER (specify)**
9 U	9 7303080 4 (specify) GENERAL OPERATING PERMIT
C. RCRA (Hazardous Wastes)	**E. OTHER (specify)**
9 R	9 7303080 6 (specify) UNIT 7 AIR OPERATING PERMIT

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property bounderies. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS (provide a brief description)

GENERATION AND DISTRIBUTION OF ELECTRIC POWER

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
EMERSON W. LACEY VICE PRESIDENT	Emerson W. Lacey	September 22, 1992

COMMENTS FOR OFFICIAL USE ONLY

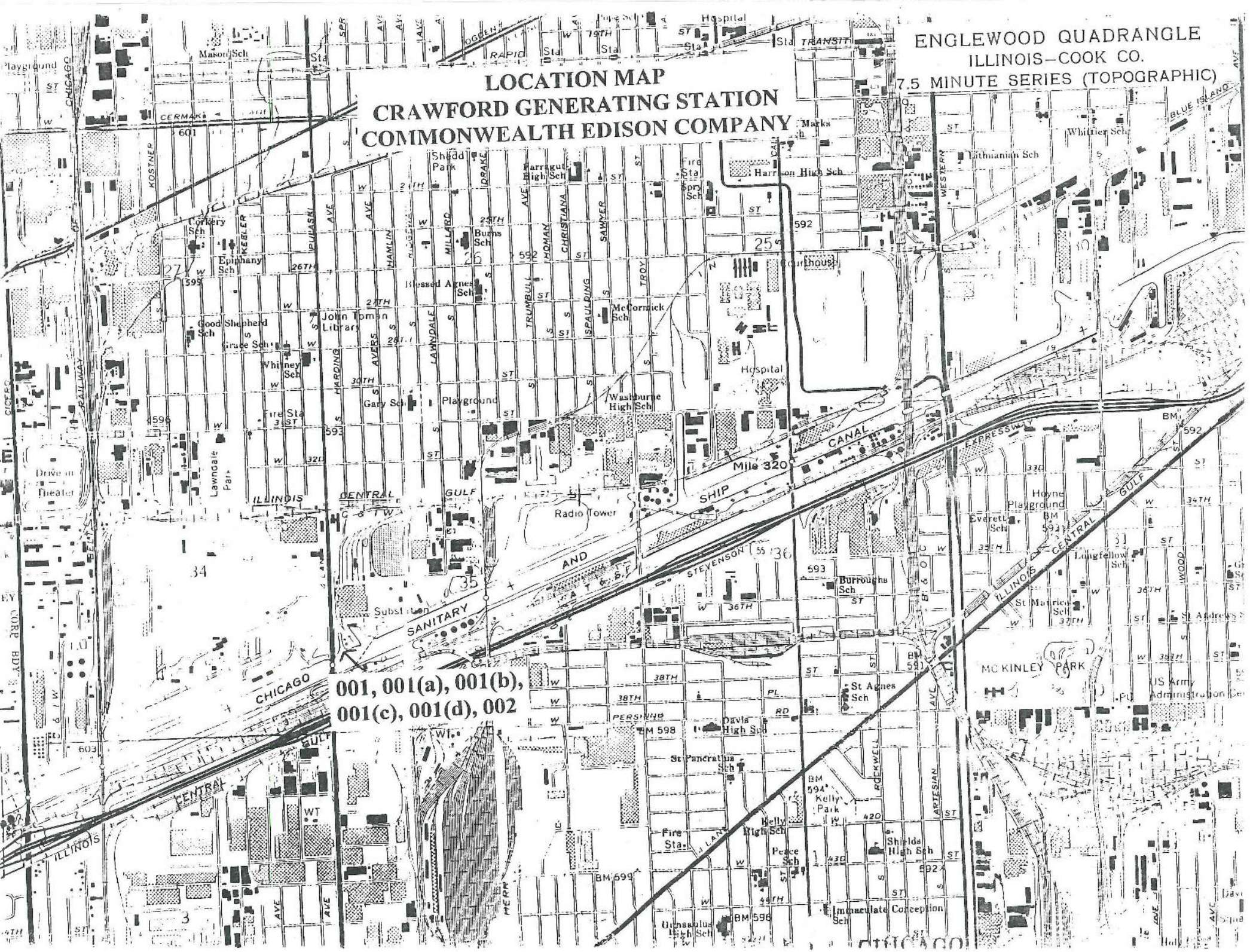
C

ILD044231470

Crawford Generating Station
Other Permits (Cont.')

Unit 8 Air Operating Permit	---73030808
Crawford Combustion Turbine (Peaker)	---73030807
Open Burning Permit	---B9406056
Crawford Title V Air Operating Permit	---95090076
Crawford Phase I Acid Rain Permit	---867
Crawford Phase II Acid Rain Permit	---867
Crawford 7&8 NOx Early Election Permit	---876
Crawford NOx Phase II Permit	---876

CrawNPDESother.doc


LOCATION MAP
CRAWFORD GENERATING STATION
COMMONWEALTH EDISON COMPANY
ENGLEWOOD QUADRANGLE
ILLINOIS–COOK CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
001, 001(a), 001(b),
001(c), 001(d), 002

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

217/782-0610

July 24, 1997

Ms. Julia P. Wozniak
Commonwealth Edison Company
One First National Plaza
Post Office Box 767
Chicago, Illinois 60690-0767

Re: Required Testing for NPDES Permit Renewal Applications

GROUP 1		GROUP 2	
Braidwood Station	IL0048321	Kincaid Station	IL0002241
Dresden Station	IL0002224	Powerton Station	IL0002232
		Waukegan Station	IL0002259
GROUP 3		Collins Station	IL0048143
LaSalle Station	IL0048151		
Crawford Station	IL0002186	GROUP 4	
Will County Station	IL0002208	Zion Station	IL0002763
Fisk Station	IL0002178	Byron Station	IL0048313
Joliet Station #9	IL0002216	Quad Cities Station	IL0005037
Joliet Station #29	IL0064254		

Dear Ms. Wozniak:

This is in response to your letter dated July 1, 1997 regarding testing requirements for NPDES renewal applications for the above-mentioned facilities. It is the decision of the Agency to waive the reporting requirements for the pollutants listed in Form 2C, Part V-A of the renewal applications for these facilities. However, upon review of each application submitted the Agency may require that sampling for these pollutants be conducted.

When sampling is required for a pollutant, the applicant must adhere to the analytical methods and detection limits promulgated under 40 CFR 136. When no analytical method is approved the applicant may use any suitable method but must provide a description of the method.

Should you have any questions regarding the above, please contact Darin LeCrone (GROUP 1), Fred Rosenblum (GROUP 2), Beth Unser (GROUP 3), or Blaine Kinsley (GROUP 4) at the above indicated telephone number or the following Agency address: 1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276.

Very truly yours,

Thomas G. McSwiggin, P.E.
Manager, Permit Section
Division of Water Pollution Control

TGM:SFN:BAU.bu

cc: Records Unit

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276 Mary A. Gade, Director

217/782-0610

Ms. Julia P. Wozniak
Commonwealth Edison Company
125 South Clark Street
Post Office Box 767
Chicago, Illinois 60690-0767

Re: Required Testing for NPDES Permit Renewal Applications

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Braidwood Station	IL0048321	Kincaid Station	IL0002241
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Will County Station	IL0002208	Zion Station	IL0002763
Fisk Station	IL0002178	Byron Station	IL0048313
Joliet Station #9	IL0002216	Quad Cities Station	IL0005037
Joliet Station #29	IL0064254		

Dear Ms. Wozniak:

This is in response to your letter dated December 19, 1997 regarding testing requirements for NPDES renewal applications for the above-mentioned facilities. It is the decision of the Agency to waive the reporting requirements for the pollutants categorized as GS/MS Fraction-Volatile Compounds, -Acid Compounds and -Base/Neutral Compounds in Form 2C, Part V-C of the renewal applications for these facilities. However, upon review of each application submitted the Agency may require that sampling for these pollutants be conducted.

When sampling is required for a pollutant, the applicant must adhere to the analytical methods and detection limits promulgated under 40 CFR 136. When no analytical method is approved the applicant may use any suitable method but must provide a description of the method.

Should you have any questions regarding the above, please contact Darin LeCrone (GROUP 1), Fred Rosenblum (GROUP 2), Beth Unser (GROUP 3), or Blaine Kinsley (GROUP 4) at the above indicated telephone number or address.

Very truly yours,

Thomas G. McSwiggin, P.E.
Manager, Permit Section
Division of Water Pollution Control

TGM:SFN:BAU.bu

cc: Records Unit

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

217/782-0610

October 5, 1999

U.S. Environmental Protection Agency
Attention: 5WN - 16J Rebecca L. Harvey, Chief
NPDES Support and Technical Assistance Branch
Region V
77 West Jackson Boulevard
Chicago, Illinois 60604

Re: Commonwealth Edison Company
Crawford Generating Station
NPDES Permit No. IL0002186
NPDES Permit Renewal Request

Dear Ms. Harvey:

Please find a copy of an NPDES permit renewal request for the facility referenced above.

A copy of the draft permit will be forwarded to your office for your records.

Should you have any questions or comments regarding the above, please contact me at the indicated telephone number and address.

Sincerely,

Beth A. Unser

Beth A. Unser
Permit Section
Division of Water Pollution Control

BAU.bu

Attachment: Renewal Application

Commonwealth Edison Company
1411 Opus Place
Downers Grove, IL 60515-5701

ComEd

August 16, 1999

CERTIFIED MAIL

Mr. Thomas McSwiggin, P.E.
Manager, Permit Section
Water Pollution Control, Permit Section #15
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

Subject: Written Agreement to Transfer NPDES Permits for:
Collins Station – NPDES Permit No. IL0048143
Crawford Station – NPDES Permit No. IL0002186
Fisk Station – NPDES Permit No. IL0002178
Joliet 9 – NPDES Permit No. IL0002216
Joliet 29 – NPDES Permit No. IL0064254
Powerton Station – NPDES Permit No. IL0002232
Waukegan Station – NPDES Permit No. IL0002259
Will County Station – NPDES Permit No. IL0002208

Dear Mr. McSwiggin,

Commonwealth Edison Company ("ComEd") and Midwest Generation, LLC ("MGL") have entered into an Asset Sale Agreement for the sale of the subject ComEd fossil fueled electric generation facilities to MGL. ComEd and MGL request that the above referenced NPDES Permits (the "Permits") be transferred to MGL on the date of closing, currently scheduled for September 30, 1999.

Pursuant to Standard Condition No. 13 of Attachment H of the Permits, ComEd and MGL hereby agree that effective on the closing under the Asset Sale Agreement, MGL shall assume all future responsibility, coverage and liability under the Permits. ComEd and MGL further agree that the Permits shall not be transferred unless and until (i) the closing occurs under the Asset Sale Agreement, and (ii) MGL sends notice to IEPA by telecopy advising of the completion of the closing after closing has occurred.

We understand that IEPA will process the notification for transfer, and that if the Agency does not notify MGL of its intent to modify or revoke the Permits, the Permits will be automatically transferred on the date specified. We further understand that ComEd's permit will remain in full force and effect, with ComEd as the permittee, if closing does not occur.

Please contact Dan Paulsen at (630) 663-5405 or Mark Chrisos at (978) 371-4106 if you have any questions or if this does not correctly reflect how the permit transfer will occur.

Current Permittee:

Signature

Emerson W. Lacey
Name

Vice President
Title

Commonwealth Edison Company
Company

Transferee:

Signature

Stephen W. Raab
Name

Vice President
Title

Midwest Generation, LLC
Company

drp/bg
NPDES transfer.doc

cc: Margaret Howard, IEPA Division of Legal Counsel
Fred Rosenblum, IEPA Division of Water Pollution Control
Beth Unser, IEPA Division of Water Pollution Control

Commonwealth Edison Company
1 1 1 Opus Place
Downers Grove, IL 60515-5701

September 24, 1999

ComEd

AIRBORNE EXPRESS

Mr. Thomas G. McSwiggin, P.E.
Manager, Permit Section
Division of Water Pollution Control
Illinois Environmental Protection Agency
1021 N. Grand Avenue East
Springfield, Illinois 62794

Subject: Renewal of NPDES Permit No. IL0002186
Crawford Generating Station

Dear Mr. McSwiggin:

Commonwealth Edison Company hereby submits two copies of Consolidated Permit Application Forms 1 and 2C for renewal of Crawford Generating Station's NPDES permit. As confirmed by your letter dated July 24, 1997, the only Form 2C, Part V-A pollutants reported are those required by the station's existing NPDES permit, and no analytical data is presented for Outfall 001(d)—Intake Screen Backwash and Outfall 002-Plant Roof Drains. Additionally, pollutants categorized as GC/MS Fraction Compounds in Part V-C are not reported for any outfalls, as per your letter received on February 4, 1998 (copy enclosed).

Pollutant levels for all permit-required parameters were derived from station data reported from July, 1998 through June, 1999. In most cases, only one analysis was conducted for all other pollutant data. Mass load values were calculated using average flow.

Form 2C – Part IIB requires a description of wastewater treatment processes. We are listing the water treatment additives that have the potential of being discharged by way of various outfalls. While we can find no provision in the permit application for including this information, we are submitting for the sake of completing the record. Material Safety Data Sheets have been enclosed where available.

Regarding Outfall 001 – Condenser Cooling Water and House Service Water, no treatment is applied to this discharge as a wastewater. To control zebra mussels in the House Service Water System, the station continuously injects sodium hypochlorite. The station utilizes dehumidification for main unit condenser biofouling control. The station requires flexibility to use sodium hypochlorite and sodium bromide in the event that conditions require their usage. We request that the new permit continue to provide flexibility by allowing the use of these biocides.

Wastes from Outfall 001(a) – Demineralizer Regenerant Wastes consist of the excess sulfuric acid, excess caustic and rinse water that supply the ultra-pure water required by

the station's boilers. Wastes discharged via Outfall 001(b) – Boiler Blowdown, consists of ultra-pure water which has been treated for pH conditioning and dissolved oxygen removal. Under normal operating conditions, this waste will consist of about 7 mg/l phosphate, 0.3 mg/l ammonia and an undetectable amount of hydrazine.

Wastes discharged via Outfall 001(c) – Recirculating Wastewater Treatment System Blowdown, are treated with alum and anionic polymers to aid sedimentation. Caustic and/or sulfuric acid may also be applied if the waste requires a pH adjustment. Non chemical metal cleaning wastes are treated by chemical precipitation and pH adjustment as needed.

Please note that ComEd is in the process of selling Crawford Generating Station. You were notified of this in our August 16, 1999 letter to you (enclosed). We will keep you informed as to the final date scheduled for closing.

Should you have any questions or require additional information, please me at (630) 663-5403.

Sincerely,

Max E. Cole

Max E. Cole
General Engineer

Enclosures (two copies)
Crawnpdesre.doc

(fill-in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved. OMB No. 2040-0086 Approval expires 7-31-

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

F I L D 0 4 4 2 3 1 4 7 0

LABEL ITEMS

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III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

RECEIVED
SEP 27 1999
Environmental Protection Agency
WPC--Permit Leg

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SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTAC
A. Is this facility a **publicly owned treatment works** which results in a discharge to **waters of the U.S.**? (FORM 2A)		X		B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a discharge to waters of the U.S.? (FORM 2B)		X	
C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)	X		X	D. Is this a proposed facility *(other than those described in A or B above)* which will result in a discharge to waters of the U.S.? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)		X		F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X		J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	

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1 SKIP: C R A W F O R D G E N E R A T I N G S T A T I O N

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2 L O R I N D A M L A M B C O M P L I A N C E D I R.	3 1 2 | 3 9 4 | 3 4 2 1

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

3 1 0 S O U T H D E A R B O R N 3 5 F N W

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 C H I C A G O	I L	6 0 6 0 3

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B. COUNTY NAME

C O O K

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE *(if known)*
6 C H I C A G O	I L	6 0 6 2 3	

CONTINUED FROM THE FRONT

VII. SIC CODES (4-digit, in order of priority)

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7 (specify)	7 (specify)

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M = PUBLIC (other than federal or state)
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P (specify)

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Is the facility located on Indian lands? [ ] YES [X] NO

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9 U	9 7303080 4 (specify) GENERAL OPERATING PERMIT
C. RCRA (Hazardous Wastes)	**E. OTHER (specify)**
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XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property bounderies. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS (provide a brief description)

GENERATION AND DISTRIBUTION OF ELECTRIC POWER

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
EMERSON W. LACEY VICE PRESIDENT	Emerson W. Lacey	September 22, 1999

COMMENTS FOR OFFICIAL USE ONLY

C

ILD044231470

Crawford Generating Station
Other Permits (Cont.')

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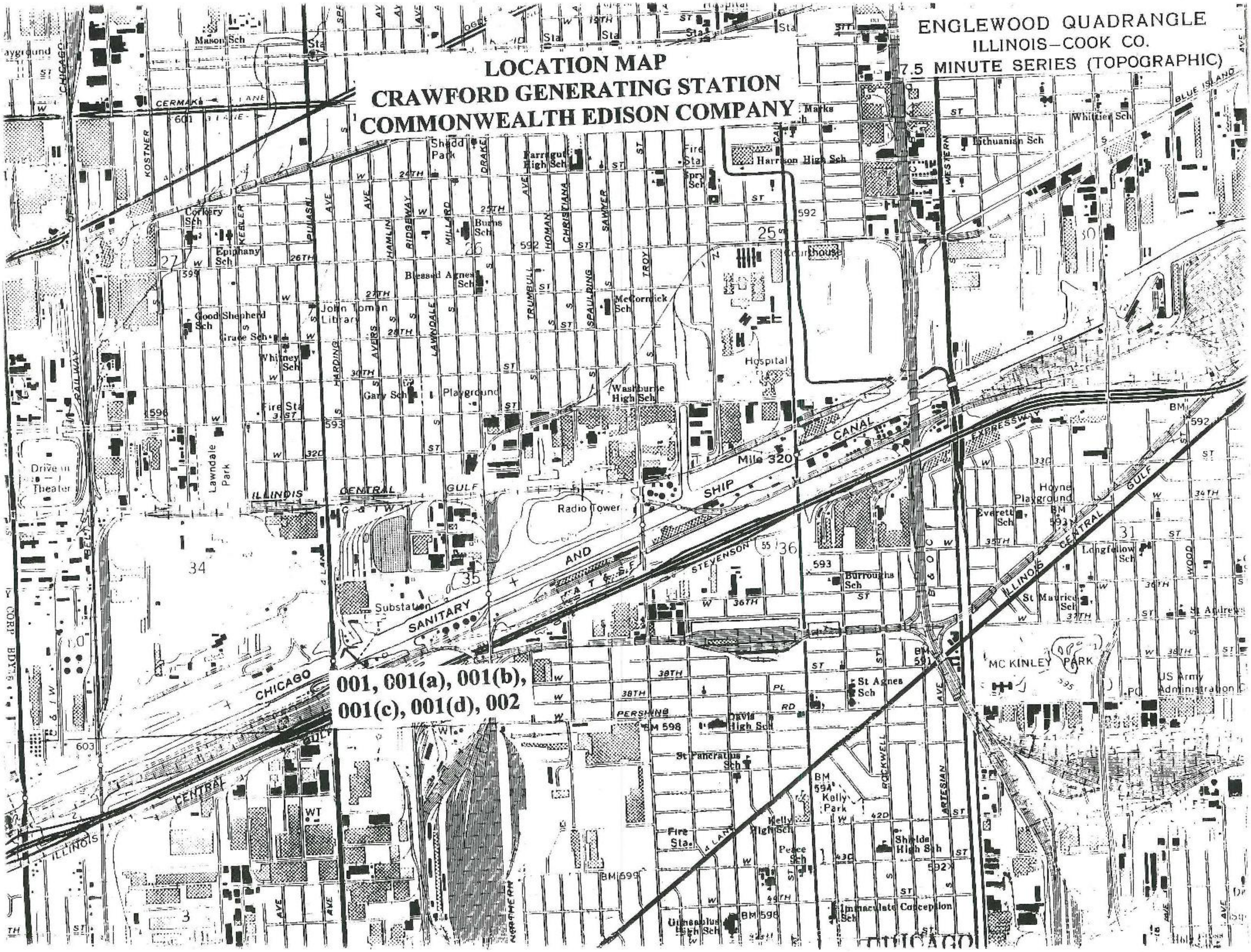
Crawford 7&8 NOx Early Election Permit	---876
Crawford NOx Phase II Permit	---876

CrawNPDESother.doc


ENGLEWOOD QUADRANGLE
ILLINOIS–COOK CO.
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LOCATION MAP
CRAWFORD GENERATING STATION
COMMONWEALTH EDISON COMPANY
001, 001(a), 001(b),
001(c), 001(d), 002
SANITARY
AND
SHIP
CANAL
Mile 320
STEVENSON
EXPRESSWAY
Radio Tower
Substation
Hospital
Courthouse
Washburne High Sch
Lawndale Park
MC KINLEY PARK
Kelly Park
Drive in Theater
ILLINOIS
CENTRAL
GULF
CHICAGO

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

217/782-0610

July 24, 1997

Ms. Julia P. Wozniak
Commonwealth Edison Company
One First National Plaza
Post Office Box 767
Chicago, Illinois 60690-0767

Re: Required Testing for NPDES Permit Renewal Applications

GROUP 1	
Braidwood Station	IL0048321
Dresden Station	IL0002224

GROUP 2	
Kincaid Station	IL0002241
Powerton Station	IL0002232
Waukegan Station	IL0002259
Collins Station	IL0048143

GROUP 3	
LaSalle Station	IL0048151
Crawford Station	IL0002186
Will County Station	IL0002208
Fisk Station	IL0002178
Joliet Station #9	IL0002216
Joliet Station #29	IL0064254

GROUP 4	
Zion Station	IL0002763
Byron Station	IL0048313
Quad Cities Station	IL0005037

Dear Ms. Wozniak:

This is in response to your letter dated July 1, 1997 regarding testing requirements for NPDES renewal applications for the above-mentioned facilities. It is the decision of the Agency to waive the reporting requirements for the pollutants listed in Form 2C, Part V-A of the renewal applications for these facilities. However, upon review of each application submitted the Agency may require that sampling for these pollutants be conducted.

When sampling is required for a pollutant, the applicant must adhere to the analytical methods and detection limits promulgated under 40 CFR 136. When no analytical method is approved the applicant may use any suitable method but must provide a description of the method.

Should you have any questions regarding the above, please contact Darin LeCrone (GROUP 1), Fred Rosenblum (GROUP 2), Beth Unser (GROUP 3), or Blaine Kinsley (GROUP 4) at the above indicated telephone number or the following Agency address: 1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276.

Very truly yours,

Thomas G. McSwiggin, P.E.
Manager, Permit Section
Division of Water Pollution Control

TGM:SFN:BAU.bu

cc: Records Unit

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276 Mary A. Gade, Director

217/782-0610

Ms. Julia P. Wozniak
Commonwealth Edison Company
125 South Clark Street
Post Office Box 767
Chicago, Illinois 60690-0767

Re: Required Testing for NPDES Permit Renewal Applications

GROUP 1		GROUP 2	
Braidwood Station	IL0048321	Kincaid Station	IL0002241
Dresden Station	IL0002224	Powerton Station	IL0002232
		Waukegan Station	IL0002259
GROUP 3		Collins Station	IL0048143
LaSalle Station	IL0048151		
Crawford Station	IL0002186	GROUP 4	
Will County Station	IL0002208	Zion Station	IL0002763
Fisk Station	IL0002178	Byron Station	IL0048313
Joliet Station #9	IL0002216	Quad Cities Station	IL0005037
Joliet Station #29	IL0064254		

Dear Ms. Wozniak:

This is in response to your letter dated December 19, 1997 regarding testing requirements for NPDES renewal applications for the above-mentioned facilities. It is the decision of the Agency to waive the reporting requirements for the pollutants categorized as GS/MS Fraction-Volatile Compounds, -Acid Compounds and -Base/Neutral Compounds in Form 2C, Part V-C of the renewal applications for these facilities. However, upon review of each application submitted the Agency may require that sampling for these pollutants be conducted.

When sampling is required for a pollutant, the applicant must adhere to the analytical methods and detection limit promulgated under 40 CFR 136. When no analytical method is approved the applicant may use any suitable method but must provide a description of the method.

Should you have any questions regarding the above, please contact Darin LeCrone (GROUP 1), Fred Rosenblum (GROUP 2), Beth Unser (GROUP 3), or Blaine Kinsley (GROUP 4) at the above indicated telephone number or address.

Very truly yours,

Thomas G. McSwiggin, P.E.
Manager, Permit Section
Division of Water Pollution Control

TGM:SFN:BAU.bu

cc: Records Unit

Commonwealth Edison Company
1411 Opus Place
Downers Grove, IL 60515-5701

ComEd

August 16, 1999

CERTIFIED MAIL

Mr. Thomas McSwiggin, P.E.
Manager, Permit Section
Water Pollution Control, Permit Section #15
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

Subject: Written Agreement to Transfer NPDES Permits for:
Collins Station – NPDES Permit No. IL0048143
Crawford Station – NPDES Permit No. IL0002186
Fisk Station – NPDES Permit No. IL0002178
Joliet 9 – NPDES Permit No. IL0002216
Joliet 29 – NPDES Permit No. IL0064254
Powerton Station – NPDES Permit No. IL0002232
Waukegan Station – NPDES Permit No. IL0002259
Will County Station – NPDES Permit No. IL0002208

Dear Mr. McSwiggin,

Commonwealth Edison Company ("ComEd") and Midwest Generation, LLC ("MGL") have entered into an Asset Sale Agreement for the sale of the subject ComEd fossil fueled electric generation facilities to MGL. ComEd and MGL request that the above referenced NPDES Permits (the "Permits") be transferred to MGL on the date of closing, currently scheduled for September 30, 1999.

Pursuant to Standard Condition No. 13 of Attachment H of the Permits, ComEd and MGL hereby agree that effective on the closing under the Asset Sale Agreement, MGL shall assume all future responsibility, coverage and liability under the Permits. ComEd and MGL further agree that the Permits shall not be transferred unless and until (i) the closing occurs under the Asset Sale Agreement, and (ii) MGL sends notice to IEPA by telecopy advising of the completion of the closing after closing has occurred.

We understand that IEPA will process the notification for transfer, and that if the Agency does not notify MGL of its intent to modify or revoke the Permits, the Permits will be automatically transferred on the date specified. We further understand that ComEd's permit will remain in full force and effect, with ComEd as the permittee, if closing does not occur.

Please contact Dan Paulsen at (630) 663-5405 or Mark Chrisos at (978) 371-4106 if you have any questions or if this does not correctly reflect how the permit transfer will occur.

Current Permittee:

Signature

Emerson W. Lacey
Name

Vice President
Title

Commonwealth Edison Company
Company

Transferee:

Signature

Stephen W. Raab
Name

Vice President
Title

Midwest Generation, LLC
Company

drp/bg
NPDES transfer.doc

cc: Margaret Howard, IEPA Division of Legal Counsel
Fred Rosenblum, IEPA Division of Water Pollution Control
Beth Unser, IEPA Division of Water Pollution Control

Please print or type in the unshaded areas only.

EPA I.D. NUMBER *(copy from Item 1 of form 1)*
ILD044231470

Form Approved.
OMB No. 2000-0059 Approval expires 12-31-85

FORM 2C NPDES

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURAL OPERATIONS
Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude to the nearest 15 seconds and the name of the receiving water.

A. OUTFALL NUMBER *(list)*	B. LATITUDE			C. LONGITUDE			D. RECEIVING WATER *(name)*
	1. DEG.	2. MIN.	3. SEC.	1. DEG.	2. MIN.	3. SEC.	
001	41	49	35	87	43	24	Chicago Sanitary and Ship Canal
001(a)	41	49	35	87	43	24	Chicago Sanitary and Ship Canal
001(b)	41	49	35	87	43	24	Chicago Sanitary and Ship Canal
001(c)	41	49	35	87	43	24	Chicago Sanitary and Ship Canal
001(d)	41	49	35	87	43	24	Chicago Sanitary and Ship Canal
002	41	49	35	87	43	24	Chicago Sanitary and Ship Canal

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined *(e.g. for certain mining activities)*, provide a pictorial description of the nature and amount of any source of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO *(list)*	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT		
	a. OPERATION *(list)*	b. AVERAGE FLOW *(include units)*	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1	
001	Condenser Cooling Water and House Service ,	355.71 MGD	Discharge to Surface Waters	4-A	
	Boiler Blowdown, Recirculating Wastewater				
	Treatment System Blowdown,				
	Intake Screen Backwash				
001(a)	Demineralizer Regenerant Wastes	0.024 MGD	Equalization, Buffering With	X-X	X-X
			Circulating Water		
001(b)	Boiler Blowdown	0.036 MGD	Buffering With Circulating Water	X-X	

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OFFICIAL USE ONLY *(effluent guidelines sub-categories)*

EPA I.D. NUMBER *(copy from Item 1 of form 1)*
ILD044231470

Form Approved.
OMB No. 2000-0059 Approval expires 12-31-85

Please print or type in the unshaded areas only.

FORM 2C NPDES

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURAL OPERATIONS
Consolidated Permits Program

1. OUTFALL NO *(list)*	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT		
	a. OPERATION *(list)*	b. AVERAGE FLOW *(include units)*	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1	
001(C)	Recirculating Wastewater Treatment Sytstme	1.08 MGD	Equilization, pH Adjustment or	X-X	X-X
	Blowdown (Ash Sluice Water, Ash Hopper Over-		Equilzation, Chemical Precipitation,	X-X	2-C
	flow, Coal Pile Runoff, Non-chemical Metal		pH Adjustment, (Metal Cleaning		
	Cleaning Wastes, Demineralizer Filter		Waste Only); Coagulation, Floc-	2-D	
	Backwash,Boiler and Turbine Biulding		culation, Sedimentation, Sludge to	1-G	1-U
	Floor Drains, Fuel Oil Handling Area		Sludge Laggons, Land Application	5-T	5-P
	Runoff, Unit #7 Air Compressor Cooling				
	Water, Coal Storage Area #2 Runoff,				
	Settling Basin Area #3 Runoff, Ash				
	Pile Area #18 Runoff, Yard Drainage				
	Areas #15 and 16, Ash Hopper Area Runoff,				
	South Detention Basin Consisting				
	of Area Runoff From:				
	Transmission Area #7, Oil Storage Area				
	#11, Rock Conveyor Area #22)				
001(d)	Intake Screen Backwash		Discharge to Surface Waters	4-A	
002	Area 14 Runoff (Boiler Room Area)	Intermittent	Discharge to Surface Waters	4-A	
	(Stormwater)				

OFFICIAL USE ONLY *(effluent guidelines sub-categories)*

CONTINUED FROM THE FRONT

C. except for storm runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?

[X] YES *(complete the following table)* [ ] NO *(go to Section III)*

1. OUTFALL NUMBER *(list)*	2. OPERATION(s) CONTRIBUTING FLOW *(list)*	3. FREQUENCY		4. FLOW				
		a. DAYS PER WEEK *(specify average)*	b. MONTHS PER YEAR *(specify average)*	a. FLOW RATE *(in mgd)*		b. TOTAL VOLUME *(specify with units)*		c. DURATION *(in days)*
				1. LONG TERM AVERAGE	2. MAXIMUM DAILY	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	
001(a)	Demineralizer Regenerant Wastes	6	12	0.024	0.071	24,000 Gallons	71,000 Gallons	1
001(b)	Boiler Blowdown	2	12	0.036	0.23	36,000 Gallons	230,000 Gallons	1
001(C)	Recirculating Wastewater Treatment Plant	1.5	12	1.08	2.1	1,080,000 Gallons	2,100,000 Gallons	1

III. PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

[X] YES *(complete Item III-B)* [ ] NO *(go to Section IV)*

B. Are limitations in the applicable effluent guideline expressed in terms of production *(or other measure of operation)*?

[ ] YES *(complete Item III-C)* [X] NO *(go to Section IV)*

C. If you answered "yes" to Item III-B, list the quantity which represents an actual measurement of your level of production, expressed in terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

1. AVERAGE DAILY PRODUCTION			2. AFFECTED OUTFALLS *(list outfall numbers)*
a. QUANTITY PER DAY	b. UNITS OF MEASURE	c. OPERATION, PRODUCT, MATERIAL, ETC. *(specify)*	
N/A	N/A	N/A	N/A

IV. IMPROVEMENTS

A. Are you now required by any Federal, State or Local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

[ ] YES *(complete the following table)* [X] NO *(go to Item IV-B)*

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS		3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE	
	a. NO.	b. SOURCE OF DISCHARGE		a. REQUIRED	b. PROJECTED
N/A		N/A	N/A		

B. OPTIONAL: You may wish to attach additional sheets describing any additional water pollution control programs *(or other environmental projects which may affect your discharges)* you now have underway or which you plan. Indicate whether each program is now underway or planned, and indicate your actual or planned schedules for construction.

[ ] MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAMS IS ATTACHED.

EPA I.D. NUMBER *(copy from Item 1 of form 1)*
ILD044231470

Form Approved.
OMB No. 2000-0059 Approval expires 12-31-85

V. INTAKE AND EFFLUENT CHARACTERISTICS

A, B,& C: See instructions before proceeding - Complete one set of tables for each outfall - Annotate the outfall number in the space provided. NOTE: Tables V-A, V-B, and V-C are included on separate sheets numbered V-1 through V-9.

D. Use the space below to list any of the pollutants listed in Table 2c-3 of the instructions, which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical data in your possession

1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE
N/A	N/A		

VI. POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS

Is any pollutant listed in Item V-C a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

[ ] YES *(list all such pollutants below)* [X] NO *(go to Item VI-B)*

N/A

CONTINUED FROM THE FRONT

VII. BIOLOGICAL TOXICITY TESTING DATA

Do you have knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of you discharges or on a receiving water in relation to your discharge within the last 3 years?

[ ] YES *(identify the test(s) and describe their purposes below)* [X] NO *(go to Section VIII)*

N/A

VIII. CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

[X] YES *(list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below)* [ ] NO *(go to Section IX)*

A. NAME	B. ADDRESS	C. TELEPHONE *(area code & no.)*	D. POLLUTANTS ANALYZED *(list)*
Test America	850 W. Bartlett Road Bartlett, IL 60103	(630) 289-3100	All Parameters

IX. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

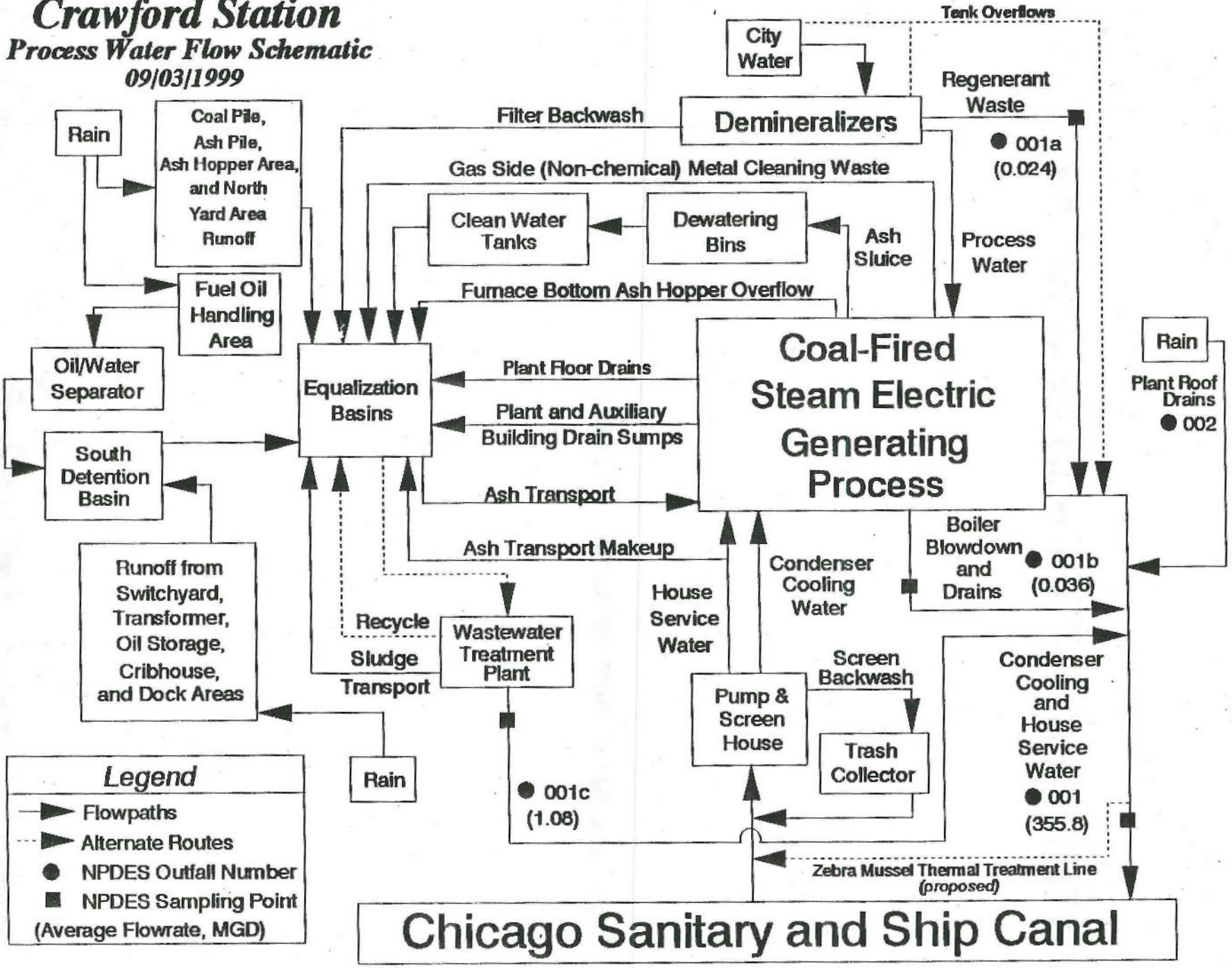
A. NAME & OFFICIAL TITLE *(type or print)*	B. PHONE NO. *(area code & no.)*
Emerson W. Lacey , Vice President	(630) 663-5212
C. SIGNATURE Emerson W. Lacey	D. DATE SIGNED September 22, 1999

Commonwealth Edison Company

Crawford Station

Process Water Flow Schematic

09/03/1999



Addendum

Renewal of NPDES permit No. IL0002186
Crawford Generating Station

The following comments are submitted with regard to the station's existing NPDES permit. Corrections and requests included herein reference pages and terms of the existing permit.

Page 5: Outfall 001(c) Recirculating Wastewater Treatment System Blowdown

The listing of subwaste streams needs to be updated. The current list is:

1. Ash sluice water
2. Ash hopper overflow
3. Coal pile runoff
4. Non-chemical metal cleaning wastes
5. Demineralizer filter backwash
6. Boiler and turbine building floor drains
7. Fuel oil handling area runoff
8. Unit #7 air compressor cooling water
9. Coal storage area #2 runoff
10. Settling basin area #3 runoff
11. Ash pile area #18 runoff
12. Yard drainage areas #15 and 16
13. Ash hopper and crib house area runoff
14. South detention basin consisting of area runoff from:
    A. Transmission terminal areas #5, 6 and 12
    B. Transformer area #7
    C. Oil storage areas #8 and 9
    D. Power black area #11
    E. Dock conveyor area #22

CrawrenewalAdd

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets *(use the same format)* instead of completing these pages.
SEE INSTRUCTIONS

EPA I.D. NUMBER *(copy from Item1 of Form 1)*: ILD044231470

Form Approved
OMB No. 2000-0059
Approval expires 12-31-85

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO. 001

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE *(if available)* (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE *(if available)* (2) MASS	c. LONG TERM AVRG. VALUE *(if available)* (1) CONCENTRATION	c. LONG TERM AVRG. VALUE *(if available)* (2) MASS	d. NO. OF ANALYSES	3. UNITS a. CONCENTRATION	3. UNITS b. MASS	4. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	4. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (2) MASS	4. INTAKE *(optional)* d. NO. OF ANALYSES
a. Biochemical Oxygen Demand (BOD)								mg/L	lbs/day			
b. Chemical Oxygen Demand (COD)								mg/L	lbs/day			
c. Total Organic Carbon (TOC)								mg/L	lbs/day			
d. Total Suspended Solids (TSS)								mg/L	lbs/day			
e. Ammonia								mg/L	lbs/day			
f. Flow	VALUE	584.40	VALUE	520.700	VALUE	355.710	365	MGD		VALUE		
g. Temperature *(winter)*	VALUE	28.40	VALUE	22.8	VALUE	17.8	90	°C		VALUE		
h. Temperature *(summer)*	VALUE	43.70	VALUE	35	VALUE	32.2	122	°C		VALUE		
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM				STANDARD UNITS				

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PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in you discharge. Complete one table for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK 'X' b. BELIEVED PRESENT	2. MARK 'X' c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE *(if available)* (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE *(if available)* (2) MASS	c. LONG TERM AVRG. VALUE *(if available)* (1) CONCENTRATION	c. LONG TERM AVRG. VALUE *(if available)* (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE *(optional)* d. NO. OF ANALYSES
a. Bromide (24959-67-9)		X								mg/L	lbs/day			
b. Chlorine, Total Residual		X								mg/L	lbs/day			
c. Color	X		14						1	Pt-Co		16		1
d. Fecal Coliform		X												
e. Fluoride (16984 48-8)	X		0.70	2077.88					1	mg/L	lbs/day	0.43		1
f. Nitrate-Nitrite *(as N)*	X		5.10	15138.84					1	mg/L	lbs/day	3.40		1

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' b. BELIEVED PRESENT	2. MARK 'X' c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE (optional) d. NO. OF ANALYSES
g. Nitrogen, Total Organic *(as N)*	X		1.45	4304.18					1	mg/L	lbs/day	0.73		1
h. Oil and Grease	X		5	14842.00			< 5.0	< 14842	4	mg/L	lbs/day	< 5		4
i. Phosphorus *(as P)*, Total (7723-14-0)	X		1.00	2968.40					1	mg/L	lbs/day	0.59		1
j. Radioactivity														
(1) Alpha, Total		X								pCi/L				
(2) Beta, Total		X								pCi/L				
(3) Radium, Total		X								pCi/L				
(4) Radium 226, Total		X								pCi/L				
k. Sulfate *(as SO_4)* (14808-79-8)	X		69	204820					1	mg/L	lbs/day	55		1
l. Sulfide *(as S)*		X												
m. Sulfite *(as SO_3)* (14266-46-3)		X												
n. Surfactants	X		0.12	356.21					1	mg/L	lbs/day	0.06		1
o. Aluminum, Total (7429-90-5)	X		0.2	685.70					1	mg/L	lbs/day	0.2		1
p. Barium, Total (7440-39-3)	X		0.0	92.02					1	mg/L	lbs/day	0.0		1
q. Boron, Total (7440 42-8)	X		0.21	635.24					1	mg/L	lbs/day	0.13		1
r. Cobalt, Total (7440 48-4)	X		< 0.10	< 296.84					1	mg/L	lbs/day	< 0.10		1
s. Iron, Total (7439-89-6)	X		0.78	2306.45					1	mg/L	lbs/day	0.27		1
t. Magnesium, Total (7439-95-4)	X		23.0	68273.20					1	mg/L	lbs/day	21.0		1
u. Molybdenum, Total (7439-98-7)	X		< 0.1	< 296.84					1	mg/L	lbs/day	< 0.1		1
v. Manganese, Total (7439-96-5)	X		0.04	115.77					1	mg/L	lbs/day	0.02		1
w. Tin, Total (7440 31-5)	X		< 1.0	< 2968.40					1	mg/L	lbs/day	< 1.0		1
x. Titanium, Total (7440-32-6)	X		< 0.1	< 296.84					1	mg/L	lbs/day	< 0.1		1

CONTINUE ON PAGE V-3

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*	OUTFALL NUMBER
ILD044231470	001

Form Approved.
OMB No. 2000-0059 Approval
expires 12-31-85

CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a *(secondary industries, nonprocess wastewater outfalls, and non-required GC/MS fractions)*, mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb of greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4,6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are seven pages to this part; please review each carefully. Complete one table *(all 7 pages)* for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE *(if available)* (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE *(if available)* (2) MASS	c. LONG TERM AVRG. VALUE *(if available)* (1) CONCENTRATION	c. LONG TERM AVRG. VALUE *(if available)* (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	d. NO. OF ANALYSES
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			< 0.5	< 1484.20					1	mg/L	lbs/day	< 0.5		1
2M. Arsenic, Total (7440-38-2)	X			< 0.005	< 14.84					1	mg/L	lbs/day	< 0.005		1
3M. Beryllium, Total (7440-41-7)	X			< 0.01	< 14.84					1	mg/L	lbs/day	< 0.01		1
4M. Cadmium, Total (7440-43-9)	X			< 0.0100	< 29.68					1	mg/L	lbs/day	< 0.0100		1
5M. Chromium, Total (7440-47-3)	X			< 0.040	< 118.74					1	mg/L	lbs/day	< 0.040		1
6M. Copper, Total (7440-50-8)	X			< 0.020	< 59.37					1	mg/L	lbs/day	< 0.020		1
7M. Lead, Total (7439-92-1)	X			< 0.200	< 593.68					1	mg/L	lbs/day	< 0.080		1
8M. Mercury, Total (7439-97-6)	X			< 0.00020	< 0.59					1	mg/L	lbs/day	< 2E-04		1
9M. Nickel, Total (7440-02-0)	X			< 0.050	< 148.42					1	mg/L	lbs/day	< 0.050		1
10M. Selenium, Total (7782-49-2)	X			< 0.005	< 14.84					1	mg/L	lbs/day	< 0.005		1
11M. Silver, Total (7440-22-4)	X			< 0.0400	< 118.74					1	mg/L	lbs/day	< 0.0400		1
12M. Thallium, Total (7440-28-0)	X			< 0.200	< 593.68					1	mg/L	lbs/day	< 0.200		1
13M. Zinc, Total (7440-66-6)	X			0.11	314.65					1	mg/L	lbs/day	0.07		1
14M. Cyanide, Total (57-12-5)	X			< 0.005	< 14.84			< 0.005	< 14.8420	4	mg/L	lbs/day	< 0.005		4
15M. Phenols, Total	X			< 0.020	< 59.37			< 0.020	< 59.3680	4	mg/L	lbs/day	< 0.020		4
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)			X												
2V. Acrylonitrile (107-13-1)			X												
3V. Benzene (71-43-2)			X												
4V. Bis (Chloromethyl) Ether (542-88-1)			X												
5V. Bromoform (75-25-2)			X												
6V. Carbon tetrachloride (56-23-5)			X												
7V. Chlorobenzene (108-90-7)			X												
8V. Chlorodibromomethane (124-48-1)			X												
9V. Chloroethane (75-00-3)			X												
10V. 2-Chloroethylvinyl ether (110-75-8)			X												
11V. Chloroform (67-66-3)			X												
12V. Dichlorobromomethane (75-27-4)			X												
13V. Dichlorodifluoromethane (75-71-8)			X												
14V. 1,1-Dichloroethane (75-34-3)			X												
15V. 1,2-Dichloroethane (107-06-2)			X												
16V. 1,1-Dichloroethylene (75-35-4)			X												
17V. 1,2-Dichloropropane (78-87-5)			X												
18V. 1,3-Dichloropropylene (542-75-6)			X												
19V. Ethylbenzene (100-41-4)			X												
20V. Methyl bromide (74-83-9)			X												
21V. Methyl chloride (74-87-3)			X												

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1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - VOLATILE COMPOUNDS *(continued)*															
22V. Methylene chloride (75-09-2)			X												
23V. 1,1,2,2-Tetrachloroethane (79-34-5)			X												
24V. Tetrachloroethylene (127-18-4)			X												
25V. Toluene (108-88-3)			X												
26V. 1,2-Trans-dichloroethylene (156-60-5)			X												
27V. 1,1,1-Trichloroethane (71-55-6)			X												
28V. 1,1,2-Trichloroethane (79-00-5)			X												
29V. Trichloroethylene (79-01-6)			X												
30V. Trichlorofluoromethane (75-69-4)			X												
31V. Vinyl chloride (75-01-4)			X												
GC/MS FRACTION - ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)			X												
2A. 2,4-Dichlorophenol (120-83-2)			X												
3A. 2,4-Dimethylphenol (105-67-9)			X												
4A. 4,6-Dinitro-O-cresol (534-52-1)			X												
5A. 2,4-Dinitrophenol (51-28-5)			X												
6A. 2-Nitrophenol (88-75-5)			X												
7A. 4-Nitrophenol (100-02-7)			X												
8A. P-Chloro-M-cresol (59-50-7)			X												
9A. Pentachlorophenol (87-86-5)			X												
10A. Phenol (108-95-2)			X												
11A. 2,4,6-Trichlorophenol (88-06-2)			X												

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)			X												
2B. Acenaphthylene (208-96-8)			X												
3B. Antracene (120-12-7)			X												
4B. Benzidine (92-87-5)			X												
5B. Benzo (a) anthracene (56-55-3)			X												
6B. Benzo (a) pyrene (50-32-8)			X												
7B. 3,4-Benzofluoranthene (205-99-2)			X												
8B. Benzo (ghi) perylene (191-24-2)			X												
9B. Benzo (k) fluoranthene (207-08-9)			X												
10B. Bis (2chloroethox-y) methane (111-91-1)			X												
11B. Bis (2-chloroethyl) ether (111-44-4)			X												
12B. Bis (2-chloroiso-propyl) ether (102-60-1)			X												
13B. Bis (2-ethylhexyl) phthalate (117-81-7)			X												
14B. 4-Bromophenyl phenyl ether (101-55-3)			X												
15B. Butyl benzyl phthalate (85-68-7)			X												
16B. 2-Chloronaphthalene (91-58-7)			X												
17B. 4-Chlorophenyl phenyl ether (7005-72-3)			X												
18B. Chrysene (218-01-9)			X												
19B. Dibenzo (a,h) anthracene (53-70-3)			X												
20B. 1,2-Dichlorobenzene (95-50-1)			X												
21B. 1,3-Dichlorobenzene (541-73-1)			X												

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1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS *(continued)*															
22B. 1,4-Dichlorobenzene (106-46-7)			X												
23B. 3,3'-Dichlorobenzedine (91-94-1)			X												
24B. Diethyl phthalate (84-66-2)			X												
25B. Dimethyl phthalate (131-11-3)			X												
26B. Di-N-butyl phthalate (84-74-2)			X												
27B. 2,4-Dinitrotolune (121-14-2)			X												
28B. 2,6-Dinitrotolune (606-20-2)			X												
29B. Di-N-octyl phthalate (117-84-0)			X												
30B. 1,2-Diphenylhydrazine (122-66-7)			X												
31B. Fluoranthene (206-44-0)			X												
32B. Fluorene (86-73-7)			X												
33B. Hexachlorobenzene (118-74-1)			X												
34B. Hexachlorobutadiene (87-68-3)			X												
35B. Hexachlorocyclopentadiene (77-47-4)			X												
36B. Hexachloroethane (67-72-1)			X												
37B. Indeno (1,2,3-cd) pyrene (193-39-5)			X												
38B. Isophorone (78-59-1)			X												
39B. Naphthalene (91-20-3)			X												
40B. Nitrobenzene (98-95-3)			X												
41B. N-Nitrosodimethylamine (62-75-9)			X												
42B. N-Nitrosodi-N-propylamine (621-64-7)			X												

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS (continued)															
43B. N-Nitrosodiphenylamine (86-30-6)			X												
44B. Phenanthrene (85-01-8)			X												
45B. Pyrene (129-00-0)			X												
46B. 1,2,4-Trichlorobenzene (120-82-1)			X												
GC/MS FRACTION - PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. -BHC (319-84-6)			X												
3P. -BHC (319-85-7)			X												
4P. -BHC (58-89-9)			X												
5P. -BHC (319-86-8)			X												
6P. Chlordane (5774-9)			X												
7P. 4,4'-DDT (5029-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (6057-1)			X												
11P. -Endosulfan (115-29-7)			X												
12P. -Endosulfan (115-29-7)			X												
13P. Endosulfan Sulfate (1031-07-8)			X												
14P. Endrin (7220-8)			X												
15P. Endrin Aldehyde (7421-93-4)			X												
16P. Heptachlor (76-44-8)			X												

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1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - PESTICIDES *(continued)*															
17P. Heptachlor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)			X												
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-6)			X												
23P. PCB-1260 (11096-82-5)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets *(use the same format)* instead of completing these pages.
SEE INSTRUCTIONS

EPA I.D. NUMBER *(copy from Item1 of Form 1)*: ILD044231470

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V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO. 001(a)

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT							3. UNITS		4. INTAKE *(optional)*		
	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANAL-YSES	a. CONCEN TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANAL-YSES
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCEN-TRATION	(2) MASS	
a. Biochemical Oxygen Demand (BOD)								mg/L	lbs/day			
b. Chemical Oxygen Demand (COD)								mg/L	lbs/day			
c. Total Organic Carbon (TOC)								mg/L	lbs/day			
d. Total Suspended Solids (TSS)	7.0	1.40	7.0	1.40	< 4.1	< 0.82	12	mg/L	lbs/day			
e. Ammonia								mg/L	lbs/day			
f. Flow	VALUE	0.071	VALUE	0.031	VALUE	0.024	365	MGD		VALUE		
g. Temperature *(winter)*	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature *(summer)*	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM				STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in you discharge. Complete one table for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK 'X'		3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	b. BE-LIEVED PRE-SENT	c. BE-LIEVED AB-SENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANAL-YSES	a. CONCEN TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANAL-YSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCEN-TRATION	(2) MASS	
a. Bromide (24959-67-9)		X								mg/L	lbs/day			
b. Chlorine, Total Residual		X								mg/L	lbs/day			
c. Color	X		< 10						1	Pt-Co				
d. Fecal Coliform		X												
e. Fluoride (16984 48-8)		X								mg/L	lbs/day			
f. Nitrate-Nitrite *(as N)*	X		4.40	0.88					1	mg/L	lbs/day			

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1. POLLUTANT AND CAS NUMBER (If available)	2. MARK 'X' b. BELIEVED PRESENT	2. MARK 'X' c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE (optional) d. NO. OF ANALYSES
g. Nitrogen, Total Organic *(as N)*	X		0.61	0.12					1	mg/L	lbs/day			
h. Oil and Grease	X		< 5	< 1.00	< 5.0	< 1.0014	< 5.0	< 1.0014	2	mg/L	lbs/day			
i. Phosphorus *(as P)*, Total (7723-14-0)	X		2.10	0.42					1	mg/L	lbs/day			
j. Radioactivity														
(1) Alpha, Total		X								pCi/L				
(2) Beta, Total		X								pCi/L				
(3) Radium, Total		X								pCi/L				
(4) Radium 226, Total		X								pCi/L				
k. Sulfate *(as SO_4)* (14808-79-8)	X		7000	1401.96					1	mg/L	lbs/day			
l. Sulfide *(as S)*		X												
m. Sulfite *(as SO_3)* (14266-46-3)		X												
n. Surfactants	X		< 0.05	< 0.01					1	mg/L	lbs/day			
o. Aluminum, Total (7429-90-5)	X		0.2	0.04					1	mg/L	lbs/day			
p. Barium, Total (7440-39-3)	X		0.1	0.02					1	mg/L	lbs/day			
q. Boron, Total (7440 42-8)	X		0.13	0.03					1	mg/L	lbs/day			
r. Cobalt, Total (7440 48-4)	X		< 0.10	< 0.02					1	mg/L	lbs/day			
s. Iron, Total (7439-89-6)	X		1.59	0.32					1	mg/L	lbs/day			
t. Magnesium, Total (7439-95-4)	X		68.0	13.62					1	mg/L	lbs/day			
u. Molybdenum, Total (7439-98-7)	X		< 0.1	< 0.02					1	mg/L	lbs/day			
v. Manganese, Total (7439-96-5)	X		0.01	0.00					1	mg/L	lbs/day			
w. Tin, Total (7440 31-5)	X		< 1.0	< 0.20					1	mg/L	lbs/day			
x. Titanium, Total (7440-32-6)	X		< 0.1	< 0.02					1	mg/L	lbs/day			

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PART C - if you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (secondary industries, nonprocess wastewater outfalls, and non-required GC/MS fractions), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb of greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4,6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are seven pages to this part; please review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			< 0.5	< 0.10					1	mg/L	lbs/day			
2M. Arsenic, Total (7440-38-2)	X			< 0.005	< 0.00					1	mg/L	lbs/day			
3M. Beryllium, Total (7440-41-7)	X			< 0.01	< 0.00					1	mg/L	lbs/day			
4M. Cadmium, Total (7440-43-9)	X			< 0.0100	< 0.00					1	mg/L	lbs/day			
5M. Chromium, Total (7440-47-3)	X			< 0.040	< 0.01					1	mg/L	lbs/day			
6M. Copper, Total (7440-50-8)	X			< 0.020	< 0.00					1	mg/L	lbs/day			
7M. Lead, Total (7439-92-1)	X			< 0.080	< 0.02					1	mg/L	lbs/day			
8M. Mercury, Total (7439-97-6)	X			0.00040	0.0001					1	mg/L	lbs/day			
9M. Nickel, Total (7440-02-0)	X			< 0.050	< 0.01					1	mg/L	lbs/day			
10M. Selenium, Total (7782-49-2)	X			0.036	0.01					1	mg/L	lbs/day			
11M. Silver, Total (7440-22-4)	X			< 0.0400	< 0.01					1	mg/L	lbs/day			
12M. Thallium, Total (7440-28-0)	X			< 0.200	< 0.04					1	mg/L	lbs/day			
13M. Zinc, Total (7440-66-6)	X			0.04	0.01					1	mg/L	lbs/day			
14M. Cyanide, Total (57-12-5)	X			< 0.005	< 0.0010					1	mg/L	lbs/day			
15M. Phenols, Total	X			< 0.020	< 0.004					1	mg/L	lbs/day			
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)			X												
2V. Acrylonitrile (107-13-1)			X												
3V. Benzene (71-43-2)			X												
4V. Bis (Chloromethyl) Ether (542-88-1)			X												
5V. Bromoform (75-25-2)			X												
6V. Carbon tetrachloride (56-23-5)			X												
7V. Chlorobenzene (108-90-7)			X												
8V. Chlorodibromomethane (124-48-1)			X												
9V. Chloroethane (75-00-3)			X												
10V. 2-Chloroethylvinyl ether (110-75-8)			X												
11V. Chloroform (67-66-3)			X												
12V. Dichlorobromomethane (75-27-4)			X												
13V. Dichlorodifluoromethane (75-71-8)			X												
14V. 1,1-Dichloroethane (75-34-3)			X												
15V. 1,2-Dichloroethane (107-06-2)			X												
16V. 1,1-Dichloroethylene (75-35-4)			X												
17V. 1,2-Dichloropropane (78-87-5)			X												
18V. 1,3-Dichloropropylene (542-75-6)			X												
19V. Ethylbenzene (100-41-4)			X												
20V. Methyl bromide (74-83-9)			X												
21V. Methyl chloride (74-87-3)			X												

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	a. TEST-ING RE-QUIR-ED	b. BE-LIEVED PRE-SENT	c. BE-LIEVED AB-SENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANAL-YSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANAL-YSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCEN-TRATION	(2) MASS	
GC/MS FRACTION - VOLATILE COMPOUNDS *(continued)*															
22V. Methylene chloride (75-09-2)			X												
23V. 1,1,2,2-Tetra-chloroethane (79-34-5)			X												
24V. Tetrachloroethylene (127-18-4)			X												
25V. Toluene (108-88-3)			X												
26V. 1,2-Trans-dichloro-ethylene (156-60-5)			X												
27V. 1,1,1-Trichloroethane (71-55-6)			X												
28V. 1,1,2-Trichloroethane (79-00-5)			X												
29V. Trichloroethylene (79-01-6)			X												
30V. Trichlorofluoro-methane (75-69-4)			X												
31V. Vinyl chloride (75-01-4)			X												
GC/MS FRACTION - ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)			X												
2A. 2,4-Dichlorophenol (120-83-2)			X												
3A. 2,4-Dimethylphenol (105-67-9)			X												
4A. 4,6-Dinitro-O-cresol (534-52-1)			X												
5A. 2,4-Dinitrophenol (51-28-5)			X												
6A. 2-Nitrophenol (88-75-5)			X												
7A. 4-Nitrophenol (100-02-7)			X												
8A. P-Chloro-M-cresol (59-50-7)			X												
9A. Pentachlorophenol (87-86-5)			X												
10A. Phenol (108-95-2)			X												
11A. 2,4,6-Trichlorophenol (88-06-2)			X												

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)			X												
2B. Acenaphthylene (208-96-8)			X												
3B. Anthracene (120-12-7)			X												
4B. Benzidine (92-87-5)			X												
5B. Benzo (a) anthracene (56-55-3)			X												
6B. Benzo (a) pyrene (50-32-8)			X												
7B. 3,4-Benzofluoranthene (205-99-2)			X												
8B. Benzo (ghi) perylene (191-24-2)			X												
9B. Benzo (k) fluoranthene (207-08-9)			X												
10B. Bis (2chloroethox-y) methane (111-91-1)			X												
11B. Bis (2-chloroethyl) ether (111-44-4)			X												
12B. Bis (2-chloroiso-propyl) ether (102-60-1)			X												
13B. Bis (2-ethylhexyl) phthalate (117-81-7)			X												
14B. 4-Bromophenyl phenyl ether (101-55-3)			X												
15B. Butyl benzyl phthalate (85-68-7)			X												
16B. 2-Chloronaphthalene (91-58-7)			X												
17B. 4-Chlorophenyl phenyl ether (7005-72-3)			X												
18B. Chrysene (218-01-9)			X												
19B. Dibenzo (a,h) anthracene (53-70-3)			X												
20B. 1,2-Dichlorobenzene (95-50-1)			X												
21B. 1,3-Dichlorobenzene (541-73-1)			X												

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1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK 'X'			3. EFFLUENT							4.UNITS		5. INTAKE *(optional)*		
	a. TEST-ING RE-QUIR-ED	b. BE-LIEVED PRE-SENT	c. BE-LIEVED AB-SENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c.LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANAL-YSES	a. CONCEN TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANAL-YSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCEN-TRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS *(continued)*															
22B. 1,4-Dichlorobenzene (106-46-7)			X												
23B. 3,3'-Dichloro-benzedine (91-94-1)			X												
24B. Diethyl phthalate (84-66-2)			X												
25B. Dimethyl phthalate (131-11-3)			X												
26B. Di-N-butyl phthalate (84-74-2)			X												
27B. 2,4-Dinitrotolune (121-14-2)			X												
28B. 2,6-Dinitrotolune (606-20-2)			X												
29B. Di-N-octyl phthalate (117-84-0)			X												
30B. 1,2-Diphenyl-hydrazine (122-66-7)			X												
31B. Fluoranthene (206-44-0)			X												
32B. Fluorene (86-73-7)			X												
33B. Hexachlorobenzene (118-74-1)			X												
34B. Hexachlorobutadiene (87-68-3)			X												
35B. Hexachlorocyclo-pentadiene (77-47-4)			X												
36B. Hexachloroethane (67-72-1)			X												
37B. Indeno (1,2,3-cd) pyrene (193-39-5)			X												
38B. Isophorone (78-59-1)			X												
39B. Naphthalene (91-20-3)			X												
40B. Nitrobenzene (98-95-3)			X												
41B. N-Nitrosodimethyl-amine (62-75-9)			X												
42B. N-Nitrosodi-N-propylamine (621-64-7)			X												

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS (continued)															
43B. N-Nitrosodiphenylamine (86-30-6)			X												
44B. Phenanthrene (85-01-8)			X												
45B. Pyrene (129-00-0)			X												
46B. 1,2,4-Trichlorobenzene (120-82-1)			X												
GC/MS FRACTION - PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. -BHC (319-84-6)			X												
3P. -BHC (319-85-7)			X												
4P. -BHC (58-89-9)			X												
5P. -BHC (319-86-8)			X												
6P. Chlordane (5774-9)			X												
7P. 4,4'-DDT (5029-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (6057-1)			X												
11P. -Endosulfan (115-29-7)			X												
12P. -Endosulfan (115-29-7)			X												
13P. Endosulfan Sulfate (1031-07-8)			X												
14P. Endrin (7220-8)			X												
15P. Endrin Aldehyde (7421-93-4)			X												
16P. Heptachlor (76-44-8)			X												

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	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - PESTICIDES *(continued)*															
17P. Heptachlor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)			X												
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-6)			X												
23P. PCB-1260 (11096-82-5)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets *(use the same format)* instead of completing these pages.
SEE INSTRUCTIONS

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V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO. 001(b)

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE *(if available)* (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE *(if available)* (2) MASS	c.LONG TERM AVRG. VALUE *(if available)* (1) CONCENTRATION	c.LONG TERM AVRG. VALUE *(if available)* (2) MASS	d. NO. OF ANAL-YSES	3.UNITS a. CONCEN TRATION	3.UNITS b. MASS	4. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (1) CONCEN-TRATION	4. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (2) MASS	4. INTAKE *(optional)* d. NO. OF ANAL-YSES
a. Biochemical Oxygen Demand (BOD)								mg/L	lbs/day			
b. Chemical Oxygen Demand (COD)								mg/L	lbs/day			
c. Total Organic Carbon (TOC)								mg/L	lbs/day			
d. Total Suspended Solids (TSS)	< 5.0	< 1.50	< 5.0	< 1.50	< 4.0	< 1.20	12	mg/L	lbs/day			
e. Ammonia								mg/L	lbs/day			
f. Flow	VALUE	0.230	VALUE	0.080	VALUE	0.036	365	MGD		VALUE		
g. Temperature *(winter)*	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature *(summer)*	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM				STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in you discharge. Complete one table for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK 'X' b. BE-LIEVED PRE-SENT	2. MARK 'X' c. BE-LIEVED AB-SENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE *(if available)* (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE *(if available)* (2) MASS	c.LONG TERM AVRG. VALUE *(if available)* (1) CONCENTRATION	c.LONG TERM AVRG. VALUE *(if available)* (2) MASS	d. NO. OF ANAL-YSES	4.UNITS a. CONCEN TRATION	4.UNITS b. MASS	5. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (1) CONCEN-TRATION	5. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE *(optional)* d. NO. OF ANAL-YSES
a. Bromide (24959-67-9)		X								mg/L	lbs/day			
b. Chlorine, Total Residual		X								mg/L	lbs/day			
c. Color	X		< 10						1	Pt-Co				
d. Fecal Coliform		X												
e. Fluoride (16984 48-8)	X		< 0.05	< 0.02					1	mg/L	lbs/day			
f. Nitrate-Nitrite *(as N)*	X		< 1.00	< 0.30					1	mg/L	lbs/day			

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NUMBER (If available)	2. MARK 'X' b. BELIEVED PRESENT	2. MARK 'X' c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE (optional) d. NO. OF ANALYSES
g. Nitrogen, Total Organic *(as N)*	X		< 0.50	< 0.15					1	mg/L	lbs/day			
h. Oil and Grease	X		< 5	< 1.50					5	mg/L	lbs/day			
i. Phosphorus *(as P)*, Total (7723-14-0)	X		0.26	0.08						mg/L	lbs/day			
j. Radioactivity														
(1) Alpha, Total		X								pCi/L				
(2) Beta, Total		X								pCi/L				
(3) Radium, Total		X								pCi/L				
(4) Radium 226, Total		X								pCi/L				
k. Sulfate *(as SO_4)* (14808-79-8)	X		< 10	< 3.00					1	mg/L	lbs/day			
l. Sulfide *(as S)*		X												
m. Sulfite *(as SO_3)* (14265-45-3)		X												
n. Surfactants	X		< 0.05	< 0.015						mg/L	lbs/day			
o. Aluminum, Total (7429-90-5)	X		< 0.1	< 0.03					1	mg/L	lbs/day			
p. Barium, Total (7440-39-3)	X		< 0.02	< 0.01					1	mg/L	lbs/day			
q. Boron, Total (7440 42-8)	X		< 0.05	< 0.02					1	mg/L	lbs/day			
r. Cobalt, Total (7440 48-4)	X		< 0.10	< 0.03					1	mg/L	lbs/day			
s. Iron, Total (7439-89-6)	X		< 0.05	< 0.02					1	mg/L	lbs/day			
t. Magnesium, Total (7439-95-4)	X		< 1.0	< 0.30					1	mg/L	lbs/day			
u. Molybdenum, Total (7439-98-7)	X		< 0.1	< 0.03					1	mg/L	lbs/day			
v. Manganese, Total (7439-96-5)	X		< 0.01	< 0.003					1	mg/L	lbs/day			
w. Tin, Total (7440 31-5)	X		< 1.0	< 0.30					1	mg/L	lbs/day			
x. Titanium, Total (7440-32-6)	X		< 0.1	< 0.03					1	mg/L	lbs/day			

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PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (secondary industries, nonprocess wastewater outfalls, and non-required GC/MS fractions), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb of greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4,6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are seven pages to this part; please review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE *(if available)* (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE *(if available)* (2) MASS	c. LONG TERM AVRG. VALUE *(if available)* (1) CONCENTRATION	c. LONG TERM AVRG. VALUE *(if available)* (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	d. NO. OF ANALYSES
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			< 0.5	< 0.15					1	mg/L	lbs/day			
2M. Arsenic, Total (7440-38-2)	X			< 0.005	< 0.002					1	mg/L	lbs/day			
3M. Beryllium, Total (7440-41-7)	X			< 0.01	< 0.002					1	mg/L	lbs/day			
4M. Cadmium, Total (7440-43-9)	X			< 0.0100	< 0.003					1	mg/L	lbs/day			
5M. Chromium, Total (7440-47-3)	X			< 0.040	< 0.01					1	mg/L	lbs/day			
6M. Copper, Total (7440-50-8)	X			0.168	0.05					1	mg/L	lbs/day			
7M. Lead, Total (7439-92-1)	X			< 0.080	< 0.02					1	mg/L	lbs/day			
8M. Mercury, Total (7439-97-6)	X			< 0.00020	< 0.0001					1	mg/L	lbs/day			
9M. Nickel, Total (7440-02-0)	X			< 0.050	< 0.02					1	mg/L	lbs/day			
10M. Selenium, Total (7782-49-2)	X			< 0.005	< 0.002					1	mg/L	lbs/day			
11M. Silver, Total (7440-22-4)	X			< 0.0400	< 0.01					1	mg/L	lbs/day			
12M. Thallium, Total (7440-28-0)	X			< 0.200	< 0.06					1	mg/L	lbs/day			
13M. Zinc, Total (7440-66-6)	X			< 0.02	< 0.01					1	mg/L	lbs/day			
14M. Cyanide, Total (57-12-5)	X			< 0.005	< 0.002					4	mg/L	lbs/day			
15M. Phenols, Total	X			< 0.020	< 0.01					4	mg/L	lbs/day			
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)			X												
2V. Acrylonitrile (107-13-1)			X												
3V. Benzene (71-43-2)			X												
4V. Bis (Chloromethyl) Ether (542-88-1)			X												
5V. Bromoform (75-25-2)			X												
6V. Carbon tetrachloride (56-23-5)			X												
7V. Chlorobenzene (108-90-7)			X												
8V. Chlorodibromomethane (124-48-1)			X												
9V. Chloroethane (75-00-3)			X												
10V. 2-Chloroethylvinyl ether (110-75-8)			X												
11V. Chloroform (67-66-3)			X												
12V. Dichlorobromomethane (75-27-4)			X												
13V. Dichlorodifluoromethane (75-71-8)			X												
14V. 1,1-Dichloroethane (75-34-3)			X												
15V. 1,2-Dichloroethane (107-06-2)			X												
16V. 1,1-Dichloroethylene (75-35-4)			X												
17V. 1,2-Dichloropropane (78-87-5)			X												
18V. 1,3-Dichloropropylene (542-75-6)			X												
19V. Ethylbenzene (100-41-4)			X												
20V. Methyl bromide (74-83-9)			X												
21V. Methyl chloride (74-87-3)			X												

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1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	a. TEST-ING RE-QUIR-ED	b. BE-LIEVED PRE-SENT	c. BE-LIEVED AB-SENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANAL-YSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANAL-YSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCEN-TRATION	(2) MASS	
GC/MS FRACTION - VOLATILE COMPOUNDS *(continued)*															
22V. Methylene chloride (75-09-2)			X												
23V. 1,1,2,2-Tetra-chloroethane (79-34-5)			X												
24V. Tetrachloroethylene (127-18-4)			X												
25V. Toluene (108-88-3)			X												
26V. 1,2-Trans-dichloro-ethylene (156-60-5)			X												
27V. 1,1,1-Trichloroethane (71-55-6)			X												
28V. 1,1,2-Trichloroethane (79-00-5)			X												
29V. Trichloroethylene (79-01-6)			X												
30V. Trichlorofluoro-methane (75-69-4)			X												
31V. Vinyl chloride (75-01-4)			X												
GC/MS FRACTION - ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)			X												
2A. 2,4-Dichlorophenol (120-83-2)			X												
3A. 2,4-Dimethylphenol (105-67-9)			X												
4A. 4,6-Dinitro-O-cresol (534-52-1)			X												
5A. 2,4-Dinitrophenol (51-28-5)			X												
6A. 2-Nitrophenol (88-75-5)			X												
7A. 4-Nitrophenol (100-02-7)			X												
8A. P-Chloro-M-cresol (59-50-7)			X												
9A. Pentachlorophenol (87-86-5)			X												
10A. Phenol (108-95-2)			X												
11A. 2,4,6-Trichlorophenol (88-06-2)			X												

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)			X												
2B. Acenaphthylene (208-96-8)			X												
3B. Antracene (120-12-7)			X												
4B. Benzidine (92-87-5)			X												
5B. Benzo (a) anthracene (56-55-3)			X												
6B. Benzo (a) pyrene (50-32-8)			X												
7B. 3,4-Benzofluoranthene (205-99-2)			X												
8B. Benzo (ghi) perylene (191-24-2)			X												
9B. Benzo (k) fluoranthene (207-08-9)			X												
10B. Bis (2chloroethox-y) methane (111-91-1)			X												
11B. Bis (2-chloroethyl) ether (111-44-4)			X												
12B. Bis (2-chloroiso-propyl) ether (102-80-1)			X												
13B. Bis (2-ethylhexyl) phthalate (117-81-7)			X												
14B. 4-Bromophenyl phenyl ether (101-55-3)			X												
15B. Butyl benzyl phthalate (85-68-7)			X												
16B. 2-Chloronaphthalene (91-58-7)			X												
17B. 4-Chlorophenyl phenyl ether (7005-72-3)			X												
18B. Chrysene (218-01-9)			X												
19B. Dibenzo (a,h) anthracene (53-70-3)			X												
20B. 1,2-Dichlorobenzene (95-50-1)			X												
21B. 1,3-Dichlorobenzene (541-73-1)			X												

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1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS *(continued)*															
22B. 1,4-Dichlorobenzene (106-46-7)			X												
23B. 3,3'-Dichlorobenzedine (91-94-1)			X												
24B. Diethyl phthalate (84-66-2)			X												
25B. Dimethyl phthalate (131-11-3)			X												
26B. Di-N-butyl phthalate (84-74-2)			X												
27B. 2,4-Dinitrotolune (121-14-2)			X												
28B. 2,6-Dinitrotolune (606-20-2)			X												
29B. Di-N-octyl phthalate (117-84-0)			X												
30B. 1,2-Diphenylhydrazine (122-66-7)			X												
31B. Fluoranthene (206-44-0)			X												
32B. Fluorene (86-73-7)			X												
33B. Hexachlorobenzene (118-74-1)			X												
34B. Hexachlorobutadiene (87-68-3)			X												
35B. Hexachlorocyclopentadiene (77-47-4)			X												
36B. Hexachloroethane (67-72-1)			X												
37B. Indeno (1,2,3-cd) pyrene (193-39-5)			X												
38B. Isophorone (78-59-1)			X												
39B. Naphthalene (91-20-3)			X												
40B. Nitrobenzene (98-95-3)			X												
41B. N-Nitrosodimethylamine (62-75-9)			X												
42B. N-Nitrosodi-N-propylamine (621-64-7)			X												

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS (continued)															
43B. N-Nitrosodiphenylamine (86-30-6)			X												
44B. Phenanthrene (85-01-8)			X												
45B. Pyrene (129-00-0)			X												
46B. 1,2,4-Trichlorobenzene (120-82-1)			X												
GC/MS FRACTION - PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. -BHC (319-84-6)			X												
3P. -BHC (319-85-7)			X												
4P. -BHC (58-89-9)			X												
5P. -BHC (319-86-8)			X												
6P. Chlordane (57 74-9)			X												
7P. 4,4'-DDT (50 29-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (60 57-1)			X												
11P. -Endosulfan (115-29-7)			X												
12P. -Endosulfan (115-29-7)			X												
13P. Endosulfan Sulfate (1031-07-8)			X												
14P. Endrin (72 20-8)			X												
15P. Endrin Aldehyde (7421-93-4)			X												
16P. Heptachlor (76-44-8)			X												

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1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - PESTICIDES *(continued)*															
17P. Heptachlor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)			X												
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-6)			X												
23P. PCB-1260 (11096-82-5)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets *(use the same format)* instead of completing these pages.
SEE INSTRUCTIONS

EPA I.D. NUMBER *(copy from Item1 of Form 1)*: ILD044231470

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V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO. 001 (c)

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANAL-YSES	3. UNITS a. CONCENTRATION	3. UNITS b. MASS	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (2) MASS	4. INTAKE (optional) d. NO. OF ANAL-YSES
a. Biochemical Oxygen Demand (BOD)								mg/L	lbs/day			
b. Chemical Oxygen Demand (COD)								mg/L	lbs/day			
c. Total Organic Carbon (TOC)								mg/L	lbs/day			
d. Total Suspended Solids (TSS)	21.0	188.56	12.0	107.75	9.3	83.51	52	mg/L	lbs/day			
e. Ammonia								mg/L	lbs/day			
f. Flow	VALUE	2.100	VALUE	1.430	VALUE	1.076	365	MGD		VALUE		
g. Temperature *(winter)*	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature *(summer)*	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM 6.3	MAXIMUM 8.8	MINIMUM	MAXIMUM			52	STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in you discharge. Complete one table for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK 'X' b. BELIEVED PRESENT	2. MARK 'X' c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANAL-YSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE (optional) d. NO. OF ANAL-YSES
a. Bromide (24959-67-9)		X								mg/L	lbs/day			
b. Chlorine, Total Residual		X								mg/L	lbs/day			
c. Color	X		38						1	Pt-Co				
d. Fecal Coliform		X												
e. Fluoride (16984 48-8)	X		0.41	3.68					1	mg/L	lbs/day			
f. Nitrate-Nitrite *(as N)*	X		3.90	35.02					1	mg/L	lbs/day			

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' b. BELIEVED PRESENT	2. MARK 'X' c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE (optional) d. NO. OF ANALYSES
g. Nitrogen, Total Organic *(as N)*	X		0.73	6.55					1	mg/L	lbs/day			
h. Oil and Grease	X		7	62.85	< 5.0	< 44.8961	< 3.8	< 33.67208	52	mg/L	lbs/day			
i. Phosphorus *(as P)*, Total (7723-14-0)	X		0.06	0.54					1	mg/L	lbs/day			
j. Radioactivity														
(1) Alpha, Total		X								pCi/L				
(2) Beta, Total		X								pCi/L				
(3) Radium, Total		X								pCi/L				
(4) Radium 226, Total		X								pCi/L				
k. Sulfate *(as SO_4)* (14808-79-8)	X		177	1589.32					1	mg/L	lbs/day			
l. Sulfide *(as S)*		X												
m. Sulfite *(as SO_3)* (14266-46-3)		X												
n. Surfactants	X		0.07	0.63					1	mg/L	lbs/day			
o. Aluminum, Total (7429-90-5)	X		1.8	16.34					1	mg/L	lbs/day			
p. Barium, Total (7440-39-3)	X		0.2	2.08					1	mg/L	lbs/day			
q. Boron, Total (7440 42-8)	X		0.52	4.68					1	mg/L	lbs/day			
r. Cobalt, Total (7440 48-4)	X		< 0.10	< 0.90					1	mg/L	lbs/day			
s. Iron, Total (7439-89-6)	X		0.40	3.59	< 0.40	< 3.591688	< 0.10	< 0.897922	15	mg/L	lbs/day			
t. Magnesium, Total (7439-95-4)	X		22.0	197.54					1	mg/L	lbs/day			
u. Molybdenum, Total (7439-98-7)	X		< 0.1	< 0.90					1	mg/L	lbs/day			
v. Manganese, Total (7439-96-5)	X		0.02	0.14					1	mg/L	lbs/day			
w. Tin, Total (7440 31-5)	X		< 1.0	< 8.98					1	mg/L	lbs/day			
x. Titanium, Total (7440-32-6)	X		< 0.1	< 0.90					1	mg/L	lbs/day			

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CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (secondary industries, nonprocess wastewater outfalls, and non-required GC/MS fractions), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb of greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4,6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are seven pages to this part; please review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			< 0.5	< 4.49					1	mg/L	lbs/day			
2M. Arsenic, Total (7440-38-2)	X			< 0.005	< 0.04					1	mg/L	lbs/day			
3M. Beryllium, Total (7440-41-7)	X			< 0.01	< 0.04					1	mg/L	lbs/day			
4M. Cadmium, Total (7440-43-9)	X			< 0.0100	< 0.09					1	mg/L	lbs/day			
5M. Chromium, Total (7440-47-3)	X			< 0.040	< 0.36					1	mg/L	lbs/day			
6M. Copper, Total (7440-50-8)	X			< 0.020	< 0.18	< 0.020	< 0.180	< 0.020	< 0.180	15	mg/L	lbs/day			
7M. Lead, Total (7439-92-1)	X			< 0.080	< 0.72					1	mg/L	lbs/day			
8M. Mercury, Total (7439-97-6)	X			< 0.00020	< 0.002					1	mg/L	lbs/day			
9M. Nickel, Total (7440-02-0)	X			< 0.050	< 0.45					1	mg/L	lbs/day			
10M. Selenium, Total (7782-49-2)	X			< 0.005	< 0.04					1	mg/L	lbs/day			
11M. Silver, Total (7440-22-4)	X			< 0.0400	< 0.36					1	mg/L	lbs/day			
12M. Thallium, Total (7440-28-0)	X			< 0.200	< 1.80					1	mg/L	lbs/day			
13M. Zinc, Total (7440-66-6)	X			0.06	0.55					1	mg/L	lbs/day			
14M. Cyanide, Total (57-12-5)	X			< 0.005	< 0.04					4	mg/L	lbs/day			
15M. Phenols, Total	X			< 0.020	< 0.18					4	mg/L	lbs/day			
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)			X												
2V. Acrylonitrile (107-13-1)			X												
3V. Benzene (71-43-2)			X												
4V. Bis (Chloromethyl) Ether (542-88-1)			X												
5V. Bromoform (75-25-2)			X												
6V. Carbon tetrachloride (56-23-5)			X												
7V. Chlorobenzene (108-90-7)			X												
8V. Chlorodibromomethane (124-48-1)			X												
9V. Chloroethane (75-00-3)			X												
10V. 2-Chloroethylvinyl ether (110-75-8)			X												
11V. Chloroform (67-66-3)			X												
12V. Dichlorobromomethane (75-27-4)			X												
13V. Dichlorodifluoromethane (75-71-8)			X												
14V. 1,1-Dichloroethane (75-34-3)			X												
15V. 1,2-Dichloroethane (107-06-2)			X												
16V. 1,1-Dichloroethylene (75-35-4)			X												
17V. 1,2-Dichloropropane (78-87-5)			X												
18V. 1,3-Dichloropropylene (542-75-6)			X												
19V. Ethylbenzene (100-41-4)			X												
20V. Methyl bromide (74-83-9)			X												
21V. Methyl chloride (74-87-3)			X												

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1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK 'X'			3. EFFLUENT							4.UNITS		5. INTAKE *(optional)*		
	a. TEST-ING RE-QUIR-ED	b. BE-LIEVED PRE-SENT	c. BE-LIEVED AB-SENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c.LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANAL-YSES	a. CONCEN TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANAL-YSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCEN-TRATION	(2) MASS	
GC/MS FRACTION - VOLATILE COMPOUNDS *(continued)*															
22V. Methylene chloride (75-09-2)			X												
23V. 1,1,2,2-Tetra-chloroethane (79-34-5)			X												
24V. Tetrachloroethylene (127-18-4)			X												
25V. Toluene (108-88-3)			X												
26V. 1,2-Trans-dichloro-ethylene (156-60-5)			X												
27V. 1,1,1-Trichloroethane (71-55-6)			X												
28V. 1,1,2-Trichloroethane (79-00-5)			X												
29V. Trichloroethylene (79-01-6)			X												
30V. Trichlorofluoro-methane (75-69-4)			X												
31V. Vinyl chloride (75-01-4)			X												
GC/MS FRACTION - ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)			X												
2A. 2,4-Dichlorophenol (120-83-2)			X												
3A. 2,4-Dimethylphenol (105-67-9)			X												
4A. 4,6-Dinitro-O-cresol (534-52-1)			X												
5A. 2,4-Dinitrophenol (51-28-5)			X												
6A. 2-Nitrophenol (88-75-5)			X												
7A. 4-Nitrophenol (100-02-7)			X												
8A. P-Chloro-M-cresol (59-50-7)			X												
9A. Pentachlorophenol (87-86-5)			X												
10A. Phenol (108-95-2)			X												
11A. 2,4,6-Trichlorophenol (88-06-2)			X												

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)			X												
2B. Acenaphthylene (208-96-8)			X												
3B. Antracene (120-12-7)			X												
4B. Benzidine (92-87-5)			X												
5B. Benzo (a) anthracene (56-55-3)			X												
6B. Benzo (a) pyrene (50-32-8)			X												
7B. 3,4-Benzofluoranthene (205-99-2)			X												
8B. Benzo (ghi) perylene (191-24-2)			X												
9B. Benzo (k) fluoranthene (207-08-9)			X												
10B. Bis (2chloroethox-y) methane (111-91-1)			X												
11B. Bis (2-chloroethyl) ether (111-44-4)			X												
12B. Bis (2-chloroiso-propyl) ether (102-60-1)			X												
13B. Bis (2-ethylhexyl) phthalate (117-81-7)			X												
14B. 4-Bromophenyl phenyl ether (101-55-3)			X												
15B. Butyl benzyl phthalate (85-68-7)			X												
16B. 2-Chloronaphthalene (91-58-7)			X												
17B. 4-Chlorophenyl phenyl ether (7005-72-3)			X												
18B. Chrysene (218-01-9)			X												
19B. Dibenzo (a,h) anthracene (53-70-3)			X												
20B. 1,2-Dichlorobenzene (95-50-1)			X												
21B. 1,3-Dichlorobenzene (541-73-1)			X												

CONTINUE ON PAGE V-7

CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						d. NO. OF ANALYSES	4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)			a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS *(continued)*															
22B. 1,4-Dichlorobenzene (106-46-7)			X												
23B. 3,3'-Dichlorobenzedine (91-94-1)			X												
24B. Diethyl phthalate (84-66-2)			X												
25B. Dimethyl phthalate (131-11-3)			X												
26B. Di-N-butyl phthalate (84-74-2)			X												
27B. 2,4-Dinitrotoluene (121-14-2)			X												
28B. 2,6-Dinitrotoluene (606-20-2)			X												
29B. Di-N-octyl phthalate (117-84-0)			X												
30B. 1,2-Diphenylhydrazine (122-66-7)			X												
31B. Fluoranthene (206-44-0)			X												
32B. Fluorene (86-73-7)			X												
33B. Hexachlorobenzene (118-74-1)			X												
34B. Hexachlorobutadiene (87-68-3)			X												
35B. Hexachlorocyclopentadiene (77-47-4)			X												
36B. Hexachloroethane (67-72-1)			X												
37B. Indeno (1,2,3-cd) pyrene (193-39-5)			X												
38B. Isophorone (78-59-1)			X												
39B. Naphthalene (91-20-3)			X												
40B. Nitrobenzene (98-95-3)			X												
41B. N-Nitrosodimethylamine (62-75-9)			X												
42B. N-Nitrosodi-N-propylamine (621-64-7)			X												

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS (continued)															
43B. N-Nitrosodiphenylamine (86-30-6)			X												
44B. Phenanthrene (85-01-8)			X												
45B. Pyrene (129-00-0)			X												
46B. 1,2,4-Trichlorobenzene (120-82-1)			X												
GC/MS FRACTION - PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. -BHC (319-84-6)			X												
3P. -BHC (319-85-7)			X												
4P. -BHC (58-89-9)			X												
5P. -BHC (319-86-8)			X												
6P. Chlordane (57 74-9)			X												
7P. 4,4'-DDT (50 29-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (60 57-1)			X												
11P. -Endosulfan (115-29-7)			X												
12P. -Endosulfan (115-29-7)			X												
13P. Endosulfan Sulfate (1031-07-8)			X												
14P. Endrin (72 20-8)			X												
15P. Endrin Aldehyde (7421-93-4)			X												
16P. Heptachlor (76-44-8)			X												

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1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK 'X'			3. EFFLUENT							4.UNITS		5. INTAKE *(optional)*		
	a. TEST-ING RE-QUIR-ED	b. BE-LIEVED PRE-SENT	c. BE-LIEVED AB-SENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANAL-YSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANAL-YSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCEN-TRATION	(2) MASS	
GC/MS FRACTION - PESTICIDES *(continued)*															
17P. Heptachlor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)			X												
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-6)			X												
23P. PCB-1260 (11096-82-5)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets *(use the same format)* instead of completing these pages.
SEE INSTRUCTIONS

EPA I.D. NUMBER *(copy from Item1 of Form 1)*: ILD044231470

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V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO. 001 (c) GSMCW

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE *(if available)* (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE *(if available)* (2) MASS	c. LONG TERM AVRG. VALUE *(if available)* (1) CONCENTRATION	c. LONG TERM AVRG. VALUE *(if available)* (2) MASS	d. NO. OF ANALYSES	3. UNITS a. CONCENTRATION	3. UNITS b. MASS	4. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	4. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (2) MASS	4. INTAKE *(optional)* d. NO. OF ANALYSES
a. Biochemical Oxygen Demand (BOD)								mg/L	lbs/day			
b. Chemical Oxygen Demand (COD)								mg/L	lbs/day			
c. Total Organic Carbon (TOC)								mg/L	lbs/day			
d. Total Suspended Solids (TSS)	3.0	27.04					1	mg/L	lbs/day			
e. Ammonia								mg/L	lbs/day			
f. Flow	VALUE	2.100	VALUE	1.430	VALUE	1.080	365	MGD		VALUE		
g. Temperature *(winter)*	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature *(summer)*	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM 6.3	MAXIMUM 8.8	MINIMUM	MAXIMUM			52	STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in you discharge. Complete one table for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK 'X' b. BELIEVED PRESENT	2. MARK 'X' c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE *(if available)* (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE *(if available)* (2) MASS	c. LONG TERM AVRG. VALUE *(if available)* (1) CONCENTRATION	c. LONG TERM AVRG. VALUE *(if available)* (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE *(optional)* d. NO. OF ANALYSES
a. Bromide (24959-67-9)		X								mg/L	lbs/day			
b. Chlorine, Total Residual		X								mg/L	lbs/day			
c. Color	X		10						1	Pt-Co				
d. Fecal Coliform		X												
e. Fluoride (16984 48-8)	X		1.17	10.54					1	mg/L	lbs/day			
f. Nitrate-Nitrite *(as N)*	X		3.20	28.84					1	mg/L	lbs/day			

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ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' b. BELIEVED PRESENT	2. MARK 'X' c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE (optional) d. NO. OF ANALYSES
g. Nitrogen, Total Organic *(as N)*	X		0.28	2.52					1	mg/L	lbs/day			
h. Oil and Grease	X		< 1	< 9.01					1	mg/L	lbs/day			
i. Phosphorus *(as P)*, Total (7723-14-0)	X		< 0.08	< 0.72					1	mg/L	lbs/day			
j. Radioactivity														
(1) Alpha, Total		X								pCi/L				
(2) Beta, Total		X								pCi/L				
(3) Radium, Total		X								pCi/L				
(4) Radium 226, Total		X								pCi/L				
k. Sulfate *(as SO_4)* (14808-79-8)	X		348	3136.38					1	mg/L	lbs/day			
l. Sulfide *(as S)*		X												
m. Sulfite *(as SO_3)* (14266-46-3)		X												
n. Surfactants	X		0.06	0.54					1	mg/L	lbs/day			
o. Aluminum, Total (7429-90-5)	X		0.8	7.21					1	mg/L	lbs/day			
p. Barium, Total (7440-39-3)	X		< 0.1	< 0.90					1	mg/L	lbs/day			
q. Boron, Total (7440 42-8)	X		0.49	4.42					1	mg/L	lbs/day			
r. Cobalt, Total (7440 48-4)	X		< 0.05	< 0.45					1	mg/L	lbs/day			
s. Iron, Total (7439-89-6)	X		0.08	0.72					1	mg/L	lbs/day			
t. Magnesium, Total (7439-95-4)	X		9.5	85.62					1	mg/L	lbs/day			
u. Molybdenum, Total (7439-98-7)	X		< 0.2	< 1.80					1	mg/L	lbs/day			
v. Manganese, Total (7439-96-5)	X		< 0.03	< 0.27					1	mg/L	lbs/day			
w. Tin, Total (7440 31-5)	X		< 0.8	< 7.21					1	mg/L	lbs/day			
x. Titanium, Total (7440-32-6)	X		< 0.8	< 7.21					1	mg/L	lbs/day			

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PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (secondary industries, nonprocess wastewater outfalls, and non-required GC/MS fractions), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb of greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4,6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are seven pages to this part; please review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			< 0.5	< 4.51					1	mg/L	lbs/day			
2M. Arsenic, Total (7440-38-2)	X			< 0.001	< 0.01					1	mg/L	lbs/day			
3M. Beryllium, Total (7440-41-7)	X			< 0.00	< 0.01					1	mg/L	lbs/day			
4M. Cadmium, Total (7440-43-9)	X			0.0004	0.00					1	mg/L	lbs/day			
5M. Chromium, Total (7440-47-3)	X			0.002	0.02					1	mg/L	lbs/day			
6M. Copper, Total (7440-50-8)	X			0.030	0.27					1	mg/L	lbs/day			
7M. Lead, Total (7439-92-1)	X			< 0.001	< 0.01					1	mg/L	lbs/day			
8M. Mercury, Total (7439-97-6)	X			< 0.00005	< 0.000					1	mg/L	lbs/day			
9M. Nickel, Total (7440-02-0)	X			0.003	0.03					1	mg/L	lbs/day			
10M. Selenium, Total (7782-49-2)	X			0.012	0.11					1	mg/L	lbs/day			
11M. Silver, Total (7440-22-4)	X			< 0.0010	< 0.01					1	mg/L	lbs/day			
12M. Thallium, Total (7440-28-0)	X			0.027	0.24					1	mg/L	lbs/day			
13M. Zinc, Total (7440-66-6)	X			< 0.00	< 0.02					1	mg/L	lbs/day			
14M. Cyanide, Total (57-12-5)	X			< 0.010	< 0.09	< 0.010	< 0.0901	< 0.010	< 0.0901	4	mg/L	lbs/day			
15M. Phenols, Total	X			< 0.005	< 0.05	< 0.005	< 0.0451	< 0.005	< 0.0451	4	mg/L	lbs/day			
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)			X												
2V. Acrylonitrile (107-13-1)			X												
3V. Benzene (71-43-2)			X												
4V. Bis (Chloromethyl) Ether (542-88-1)			X												
5V. Bromoform (75-25-2)			X												
6V. Carbon tetrachloride (56-23-5)			X												
7V. Chlorobenzene (108-90-7)			X												
8V. Chlorodibromomethane (124-48-1)			X												
9V. Chloroethane (75-00-3)			X												
10V. 2-Chloroethylvinyl ether (110-75-8)			X												
11V. Chloroform (67-66-3)			X												
12V. Dichlorobromomethane (75-27-4)			X												
13V. Dichlorodifluoromethane (75-71-8)			X												
14V. 1,1-Dichloroethane (75-34-3)			X												
15V. 1,2-Dichloroethane (107-06-2)			X												
16V. 1,1-Dichloroethylene (75-35-4)			X												
17V. 1,2-Dichloropropane (78-87-5)			X												
18V. 1,3-Dichloropropylene (542-75-6)			X												
19V. Ethylbenzene (100-41-4)			X												
20V. Methyl bromide (74-83-9)			X												
21V. Methyl chloride (74-87-3)			X												

CONTINUED FROM PAGE V-4

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*	OUTFALL NUMBER
ILD044231470	001 (c) GSMCW

Form Approved.
OMB No. 2000-0059 Approval
expires 12-31-85

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - VOLATILE COMPOUNDS *(continued)*															
22V. Methylene chloride (75-09-2)			X												
23V. 1,1,2,2-Tetrachloroethane (79-34-5)			X												
24V. Tetrachloroethylene (127-18-4)			X												
25V. Toluene (108-88-3)			X												
26V. 1,2-Trans-dichloroethylene (156-60-5)			X												
27V. 1,1,1-Trichloroethane (71-55-6)			X												
28V. 1,1,2-Trichloroethane (79-00-5)			X												
29V. Trichloroethylene (79-01-6)			X												
30V. Trichlorofluoromethane (75-69-4)			X												
31V. Vinyl chloride (75-01-4)			X												
GC/MS FRACTION - ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)			X												
2A. 2,4-Dichlorophenol (120-83-2)			X												
3A. 2,4-Dimethylphenol (105-67-9)			X												
4A. 4,6-Dinitro-O-cresol (534-52-1)			X												
5A. 2,4-Dinitrophenol (51-28-5)			X												
6A. 2-Nitrophenol (88-75-5)			X												
7A. 4-Nitrophenol (100-02-7)			X												
8A. P-Chloro-M-cresol (59-50-7)			X												
9A. Pentachlorophenol (87-86-5)			X												
10A. Phenol (108-95-2)			X												
11A. 2,4,6-Trichlorophenol (88-06-2)			X												

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4.UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)			X												
2B. Acenaphthylene (208-96-8)			X												
3B. Antracene (120-12-7)			X												
4B. Benzidine (92-87-5)			X												
5B. Benzo (a) anthracene (56-55-3)			X												
6B. Benzo (a) pyrene (50-32-8)			X												
7B. 3,4-Benzofluoranthene (205-99-2)			X												
8B. Benzo (ghi) perylene (191-24-2)			X												
9B. Benzo (k) fluoranthene (207-08-9)			X												
10B. Bis (2chloroethox-y) methane (111-91-1)			X												
11B. Bis (2-chloroethyl) ether (111-44-4)			X												
12B. Bis (2-chloroiso-propyl) ether (102-60-1)			X												
13B. Bis (2-ethylhexyl) phthalate (117-81-7)			X												
14B. 4-Bromophenyl phenyl ether (101-55-3)			X												
15B. Butyl benzyl phthalate (85-68-7)			X												
16B. 2-Chloronaphthalene (91-58-7)			X												
17B. 4-Chlorophenyl phenyl ether (7005-72-3)			X												
18B. Chrysene (218-01-9)			X												
19B. Dibenzo (a,h) anthracene (53-70-3)			X												
20B. 1,2-Dichlorobenzene (95-50-1)			X												
21B. 1,3-Dichlorobenzene (541-73-1)			X												

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	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS *(continued)*															
22B. 1,4-Dichlorobenzene (106-46-7)			X												
23B. 3,3'-Dichlorobenzedine (91-94-1)			X												
24B. Diethyl phthalate (84-66-2)			X												
25B. Dimethyl phthalate (131-11-3)			X												
26B. Di-N-butyl phthalate (84-74-2)			X												
27B. 2,4-Dinitrotoluene (121-14-2)			X												
28B. 2,6-Dinitrotoluene (606-20-2)			X												
29B. Di-N-octyl phthalate (117-84-0)			X												
30B. 1,2-Diphenylhydrazine (122-66-7)			X												
31B. Fluoranthene (206-44-0)			X												
32B. Fluorene (86-73-7)			X												
33B. Hexachlorobenzene (118-74-1)			X												
34B. Hexachlorobutadiene (87-68-3)			X												
35B. Hexachlorocyclopentadiene (77-47-4)			X												
36B. Hexachloroethane (67-72-1)			X												
37B. Indeno (1,2,3-cd) pyrene (193-39-5)			X												
38B. Isophorone (78-59-1)			X												
39B. Naphthalene (91-20-3)			X												
40B. Nitrobenzene (98-95-3)			X												
41B. N-Nitrosodimethylamine (62-75-9)			X												
42B. N-Nitrosodi-N-propylamine (621-64-7)			X												

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS (continued)															
43B. N-Nitrosodiphenylamine (86-30-6)			X												
44B. Phenanthrene (85-01-8)			X												
45B. Pyrene (129-00-0)			X												
46B. 1,2,4-Trichlorobenzene (120-82-1)			X												
GC/MS FRACTION - PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. -BHC (319-84-6)			X												
3P. -BHC (319-85-7)			X												
4P. -BHC (58-89-9)			X												
5P. -BHC (319-86-8)			X												
6P. Chlordane (5774-9)			X												
7P. 4,4'-DDT (5029-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (6057-1)			X												
11P. -Endosulfan (115-29-7)			X												
12P. -Endosulfan (115-29-7)			X												
13P. Endosulfan Sulfate (1031-07-8)			X												
14P. Endrin (7220-8)			X												
15P. Endrin Aldehyde (7421-93-4)			X												
16P. Heptachlor (76-44-8)			X												

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	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - PESTICIDES *(continued)*															
17P. Heptachlor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)			X												
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-6)			X												
23P. PCB-1260 (11096-82-5)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												

LISTING OF MSDS SHEETS

ALUMINUM SULFATE
AMMONIA HYDOXIDE
CARBON DIOXIDE
CAUSTIC SODA
HYDRAZINE
PWR-FLOC AE-225
SODIUM BROMIDE
SODIUM HYPOCHLORITE
SODIUM PHOSPHATE
SUFURIC ACID

Material Safety Data Sheet

From Genium's Reference Collection
Genium Publishing Corporation
1145 Catalyn Street
Schenectady, NY 12303-1836 USA
(518) 377-8855

GENIUM PUBLISHING CORP.

No. 92
ALUMINUM SULFATE, LIQUID
(Revision A)
Issued: October 1981
Revised: February 1987

SECTION 1. MATERIAL IDENTIFICATION

MATERIAL NAME: ALUMINUM SULFATE, LIQUID

DESCRIPTION/USES: An acidic salt solution in water. Used in tanning leather, sizing paper, as a mordant in dyeing; for purifying water, in fireproofing and waterproofing cloth; clarifying oils and fats; treating sewage; waterproofing concrete; deoderizing and decoloring petroleum; in antiperspirants; and agricultural pesticides.

OTHER DESIGNATIONS: Alum, Sulfuric Acid Aluminum Salt, Liquid Alum, CAS #10043-01-3

MANUFACTURER/SUPPLIER: Available from several suppliers, including: Essex Industrial Chemicals, Inc., Essex Chemical Corp., 1401 Broad Street, Clifton, NJ 07015; Telephone: (201) 773-6300

Not Four

HMIS	
H	1
F	0
R	0
PPE*	
*See Sect. 8	

R	1
I	2
S	2
K	0

SECTION 2. INGREDIENTS AND HAZARDS

	%	HAZARD DATA
Aluminum Sulfate, Liquid, CAS #10043-01-3	>99	No TLV Established.*
$Al_2(SO_4)_3 \cdot 49.6\ H_2O$		Mouse, Intraperitoneal, LD_{50}: 270 mg/kg
		Mouse, Oral LD_{50}: 6.2 mg/kg
* ACGIH (1986-87) TLV for soluble salts of Aluminum is 2 mg/m^3.		

SECTION 3. PHYSICAL DATA

Boiling Point, 1 atm ... 214°F (101°C)
Vapor Pressure ... Low; Vapor Phase Is Water
Water Solubility ... Complete
Vapor Density (Air = 1) ... Not Found
Evaporation Rate ... Not Found

Specific Gravity (H_2O = 1) ... 1.33
Percent Volatile by Volume ... Not Found
Molecular Weight, $AL_2(SO_4)_3$ ... 342.14
pH ... 1 to 3.5
Crystallization Point ... 4 to 15°F (-15.5 to -9.4°C)

Appearance and odor: Clear liquid with a greenish or brown tint. Odoriess.

SECTION 4. FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temperature	Flammability Limits in Air	LOWER	UPPER
Noncombustible	Not Found	Not Found	—	—

EXTINGUISHING MEDIA: Use whatever material is appropriate to extinguish the surrounding fire. Liquid aluminum sulfate is a noncombustible material. Alum is used as a flame retardant.
No unusual fire or explosion hazard is expected with this material.

SPECIAL FIRE-FIGHTING PROCEDURES: Liquid alum on flooring can cause slippery footing. Liquid aluminum sulfate is acidic and may cause irritation. Fire fighters must use self-contained breathing apparatus and wear fully protective clothing.

SECTION 5. REACTIVITY DATA

Liquid aluminum sulfate is stable. Hazardous polymerization cannot occur.

This material is a moderately acidic liquid that is slowly corrosive to mild steel.

It reacts with lime and other alkaline materials to form insoluble material salts.

At elevated temperature (1418°F [>770°C]) liquid aluminum sulfate may yield oxides of sulfur.

SECTION 6. HEALTH HAZARD INFORMATION

Liquid aluminum sulfate is not listed as a carcinogen by the NTP, IARC, or OSHA.
Liquid alum is an acidic salt that can irritate the eyes, skin, open wounds, and mucous membranes. Inhalation of mists can be irritating to the respiratory tract and lungs. Chronic overexposure of the skin to this material can cause contact dermatitis. Aluminum sulfate is used as a food additive and appears on the GRAS list, generally recognized as safe, applied to food additives approved by the FDA.
TARGET ORGANS: Skin. PRIMARY ENTRY: Inhalation, eyes, skin (open wounds). ACUTE EFFECTS: Irritation of eyes, skin, and respiratory tract. CHRONIC EFFECTS: May cause contact dermatitis.
FIRST AID: EYE CONTACT: Flush eyes thoroughly, including under eyelids, with running water for 15 minutes. Get medical help.* SKIN CONTACT: Remove contaminated clothing. Flush affected area with water; wash with soap and water. Get medical help.* INHALATION: Remove victim to fresh air. Restore and/or support his breathing as required. Get medical help.* INGESTION: Rinse victim's mouth with water. Give him 2 to 3 glasses of water to drink to dilute the material. Do not induce vomiting. Never give anything by mouth to someone who is unconscious or convulsing. Get medical help.*

* GET MEDICAL HELP = In plant, community, paramedic. Get medical help for further treatment, observation, and support after first aid.

SECTION 7. SPILL, LEAK, AND DISPOSAL PROCEDURES

Provide adequate ventilation during a liquid aluminum sulfate spill or leak. Cleanup personnel need protection against contact with this acidic (pH 3.5) material. Liquid spills can cause extremely slippery footing. Cover spill with limestone, hydrated or slaked lime, burnt lime (calcium oxide), or soda ash to neutralize it; then pick it up for disposal.

Bury neutralized waste in an approved landfill. Follow Federal, state, and local regulations.

Aquatic Toxicity: EPA category D with LC_{50} 100-500 mg $Al_2(SO_4)_3/L$

EPA, Clean Water Act, Reportable Spill Quantity: 5,000 lbs/2,270 kg

SECTION 8. SPECIAL PROTECTION INFORMATION

Where misty conditions occur, use an activated-carbon-filter respirator suitable for sulfuric acid mists. Provide general dilution and local exhaust ventilation in sufficient volume and pattern to keep any concentration of the hazardous ingredients listed in section 2 at a minimum. Wear acid-resistant, body-protective clothing appropriate to the work situation to minimize skin contact. Wear rubber or plastic gloves to prevent contact of material with skin, especially where open wounds, cuts, or abrasions are present. Launder soiled clothing before wearing it again. Prevent eye contact by wearing chemical safety goggles or a faceshield where splashing is possible.

Make eyewash stations and washing facilities available to use and handling areas.

Contact lenses pose a special hazard; soft lenses may absorb irritants, and all lenses concentrate them.

SECTION 9. SPECIAL PRECAUTIONS AND COMMENTS

Store liquid aluminum sulfate in closed containers in a cool, dry, well-ventilated area away from sources of heat. Protect containers from physical damage. Wear safety shoes when handling drums containing this material.
Liquid alum is corrosive to ferrous metals and mild steel. Use acid-resistant tanks (plastic/rubber lined, plastic-lined, or stainless steel) for storage and piping.
Avoid contact with skin, eyes, and clothing. This material is an acid salt. Minimize its contact with skin by using proper gloves and suitable work clothing. Practice good personal hygiene. Wash thoroughly after handling. Do not drink liquid aluminum sulfate.

Designated as a hazardous substance by EPA (40 CFR 116)
DOT Classification: ORM-B DOT ID No. NA1760

Data Source(s) Code: 1, 2, 4-7, 10, 34, 47, 63, 81, 82, 84. CK

Approvals
Indust. Hygiene/Safety 4/87
Medical Review

Contents for this MSDS

01 - PRODUCT IDENTIFICATION

PRODUCT NAME: AMMONIA SOLUTION
FORMULA: NH3 IN H2O
FORMULA WT: 17.03
CAS NO. 1336-21-6
NIOSH/RTECS NO.: BQ9625000
COMMON SYNONYMS: AMMONIA AQUEOUS; AMMONIUM HYDROXIDE; AQUA AMMONIA
PRODUCT CODES: 9724,9726

- STANDARD PHRASE

CHEMTREC ÷ (800) 424-9300
NATIONAL RESPONSE CENTER ÷ (800) 424-8802
J. T. BAKER INC.
222 RED SCHOOL LANE
PHILLIPSBURG, NJ 08865
24-HOUR EMERGENCY TELEPHONE -- (201) 859-2151

EFFECTIVE: 12/21/87
REVISION ÷04

PRECAUTIONARY LABELLING

BAKER SAF-T-DATA(*) SYSTEM

HEALTH	-	3	SEVERE (POISON)
FLAMMABILITY	-	1	SLIGHT
REACTIVITY	-	2	MODERATE
CONTACT	-	3	SEVERE (CORROSIVE)

HAZARD RATINGS ARE 0 TO 4 (0 = NO HAZARD; 4 = EXTREME HAZARD).

LABORATORY PROTECTIVE EQUIPMENT

GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES

PRECAUTIONARY LABEL STATEMENTS

POISON DANGER
CAUSES BURNS
HARMFUL IF INHALED
MAY BE FATAL IF SWALLOWED

EXCEPTIONAL HEALTH AND CONTACT HAZARDS - READ MATERIAL SAFETY DATA SHEET
DO NOT GET IN EYES, ON SKIN, ON CLOTHING.
DO NOT BREATHE VAPOR. KEEP IN TIGHTLY CLOSED CONTAINER. USE WITH ADEQUATE VENTILATION. WASH THOROUGHLY AFTER HANDLING. KEEP CONTAINER OUT OF SUN AND AWAY FROM HEAT. IN CASE OF FIRE, USE WATER SPRAY. IN CASE OF SPILL, CAREFULLY NEUTRALIZE SPILL WITH DILUTE HCL. FLUSH SPILL AREA WITH WATER.

SAF-T-DATA(*) STORAGE COLOR CODE: WHITE STRIPE (STORE SEPARATELY)

02 - HAZARDOUS COMPONENTS

COMPONENT	%	CAS NO.
AMMONIA	20-30	1336-21-6
WATER	70-80	7732-18-5

03 - PHYSICAL DATA

BOILING POINT: N/A

VAPOR PRESSURE(MM HG): 570

MELTING POINT: -78 C (-108 F)

VAPOR DENSITY(AIR=1): 0.60

SPECIFIC GRAVITY: 0.90
(H2O=1)

EVAPORATION RATE: N/A
(BUTYL ACETATE=1)

SOLUBILITY(H2O): COMPLETE (IN ALL PROPORTIONS) % VOLATILES BY VOLUME: 100

APPEARANCE & ODOR: CLEAR, COLORLESS LIQUID. PUNGENT ODOR.

04 - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (CLOSED CUP N/A

NFPA 704M RATING: 3-1-0

FLAMMABLE LIMITS: UPPER - N/A % LOWER - N/A %

FIRE EXTINGUISHING MEDIA
USE WATER SPRAY.

SPECIAL FIRE-FIGHTING PROCEDURES
FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN POSITIVE PRESSURE MODE. MOVE EXPOSED CONTAINERS FROM FIRE AREA IF IT CAN BE DONE WITHOUT RISK. USE WATER TO KEEP FIRE-EXPOSED CONTAINERS COOL; DO NOT GET WATER INSIDE CONTAINERS.

UNUSUAL FIRE & EXPLOSION HAZARDS
GIVES OFF FLAMMABLE VAPORS. VAPORS MAY FORM EXPLOSIVE MIXTURE WITH AIR.
CLOSED CONTAINERS EXPOSED TO HEAT MAY EXPLODE.
ANHYDROUS AMMONIA HAS THE FOLLOWING FLAMMABLE LIMITS: UPPER - 25% AND LOWER - 16%. THE AUTOIGNITION TEMPERATURE FOR AMMONIA GAS IS 1204 F.

TOXIC GASES PRODUCED
AMMONIA, NITROGEN OXIDES

****
| 05 - HEALTH HAZARD DATA |
****

THE TLV, STEL, AND PEL VALUES LISTED ARE FOR AMMONIA.

THRESHOLD LIMIT VALUE (TLV/TWA): 18 MG/M3 (25 PPM)

SHORT-TERM EXPOSURE LIMIT (STEL): 27 MG/M3 (35 PPM)

PERMISSIBLE EXPOSURE LIMIT (PEL): 35 MG/M3 (50 PPM)

TOXICITY: LD50 (ORAL-RAT) (MG/KG) - 350

CARCINOGENICITY: NTP: NO IARC: NO Z LIST: NO OSHA REG: NO

EFFECTS OF OVEREXPOSURE
INHALATION OF VAPORS MAY CAUSE SEVERE IRRITATION OR BURNS OF THE RESPIRATORY SYSTEM, PULMONARY EDEMA, OR LUNG INFLAMMATION.
CONTACT WITH SKIN OR EYES MAY CAUSE SEVERE IRRITATION OR BURNS.
PROLONGED EYE CONTACT MAY CAUSE PERMANENT DAMAGE TO THE CORNEA AND BLINDNESS MAY OCCUR.
INGESTION IS HARMFUL AND MAY BE FATAL.
INGESTION MAY CAUSE SEVERE BURNS OF MOUTH, THROAT, AND STOMACH.
INGESTION MAY CAUSE NAUSEA, VOMITING AND DIARRHEA.

TARGET ORGANS
RESPIRATORY SYSTEM, LUNGS, EYES, SKIN, MUCOUS MEMBRANES

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE
SKIN DISORDERS, RESPIRATORY SYSTEM DISEASE

ROUTES OF ENTRY
INHALATION, INGESTION, EYE CONTACT, SKIN CONTACT

EMERGENCY AND FIRST AID PROCEDURES
CALL A PHYSICIAN.
IF SWALLOWED, DO NOT INDUCE VOMITING; IF CONSCIOUS, GIVE LARGE AMOUNTS OF WATER. FOLLOW WITH DILUTED VINEGAR, FRUIT JUICE OR WHITES OF EGGS, BEATEN WITH WATER.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH PLENTY OF WATER FOR

AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. WASH CLOTHING BEFORE RE-USE.

06 - REACTIVITY DATA

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: HEAT, SUNLIGHT

INCOMPATIBLES: STRONG ACIDS, MOST COMMON METALS, STRONG OXIDIZING AGENTS, BROMINE, CHLORINE, ALUMINUM, COPPER, BRASS, BRONZE, MERCURY, DIMETHYL SULFATE

DECOMPOSITION PRODUCTS: AMMONIA, OXIDES OF NITROGEN

07 - SPILL AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE

WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. STOP LEAK IF YOU CAN DO SO WITHOUT RISK. VENTILATE AREA. CAREFULLY NEUTRALIZE SPILL WITH DILUTE HCL. FLUSH AREA WITH FLOODING AMOUNTS OF WATER. (USE CAUTION.)

J. T. BAKER NEUTRACIT(R)-2 OR BUCAIM* CAUSTIC NEUTRALIZERS ARE RECOMMENDED FOR SPILLS OF THIS PRODUCT.

DISPOSAL PROCEDURE

DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATIONS.

EPA HAZARDOUS WASTE NUMBER: D002, D003 (CORROSIVE, REACTIVE WASTE)

08 - PROTECTIVE EQUIPMENT

VENTILATION: USE GENERAL OR LOCAL EXHAUST VENTILATION TO MEET TLV REQUIREMENTS.

RESPIRATORY PROTECTION: RESPIRATORY PROTECTION REQUIRED IF AIRBORNE CONCENTRATION EXCEEDS TLV. AT CONCENTRATIONS UP TO 300 PPM, A CHEMICAL CARTRIDGE RESPIRATOR WITH AMMONIA/AMINE CARTRIDGE IS RECOMMENDED. ABOVE THIS LEVEL, A SELF-CONTAINED BREATHING APPARATUS IS ADVISED.

EYE/SKIN PROTECTION: SAFETY GOGGLES AND FACE SHIELD, UNIFORM, PROTECTIVE SUIT, RUBBER GLOVES ARE RECOMMENDED.

09 - STORAGE AND HANDLING PRECAUTIONS

SAF-T-DATA(*) STORAGE COLOR CODE: WHITE STRIPE (STORE SEPARATELY)

SPECIAL PRECAUTIONS
KEEP CONTAINER TIGHTLY CLOSED. STORE IN CORROSION-PROOF AREA.
ISOLATE FROM INCOMPATIBLE MATERIALS.
DO NOT STORE IN DIRECT SUNLIGHT.
STORE BELOW 25 C.

10 - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

DOMESTIC (D.O.T.)

PROPER SHIPPING NAME	AMMONIUM HYDROXIDE (12-44% AMMONIA)
HAZARD CLASS	CORROSIVE MATERIAL (LIQUID)
UN/NA	NA2672
LABELS	CORROSIVE
REPORTABLE QUANTITY	100 LBS.

INTERNATIONAL (I.M.O.)

PROPER SHIPPING NAME	AMMONIA SOLUTIONS (10-35% AMMONIA)
HAZARD CLASS	8
UN/NA	UN2672
LABELS	CORROSIVE

*) AND (R) DESIGNATE TRADEMARKS.
N/A = NOT APPLICABLE OR NOT AVAILABLE

- STANDARD PHRASE
THE INFORMATION PUBLISHED IN THIS MATERIAL SAFETY DATA SHEET HAS BEEN COMPILED FROM OUR EXPERIENCE AND DATA PRESENTED IN VARIOUS TECHNICAL PUBLICATIONS. IT IS THE USER'S RESPONSIBILITY TO DETERMINE THE SUITABILITY OF THIS INFORMATION FOR THE ADOPTION OF NECESSARY SAFETY PRECAUTIONS. WE RESERVE THE RIGHT TO REVISE MATERIAL SAFETY DATA SHEETS PERIODICALLY AS NEW INFORMATION BECOMES AVAILABLE. J.T.BAKER INC. MAKES NO WARRANTY OR REPRESENTATION ABOUT THE ACCURACY OR COMPLETENESS NOR FITNESS FOR PURPOSE OF THE INFORMATION CONTAINED HEREIN.

****
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ATTENTION: Safety and Industrial Hygiene advises users to review the intended use of this information with his/her supervisor or Safety and Industrial Hygiene advisor.

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Contents for this MSDS

01 - GENERAL INFORMATION

.002895
FROM GENIUM'S REFERENCE COLLECTION

GENIUM PUBLISHING CORPORATION
1145 CATALYN STREET
SCHENECTADY, NY 12303-1836 USA
(518) 377-8855

CARBON DIOXIDE
(REVISION A)
ISSUED: JULY 1979
REVISED: APRIL 1986

APPROVALS: (ILLEGIBLE) 1/87
INDUST. HYGIENE/SAFETY: (ILLEGIBLE) 12-86
MEDICAL REVIEW: (ILLEGIBLE) DEC. 86

****
| 02 - SECTION 1. MATERIAL IDENTIFICATION |
****

TERIAL NAME: CARBON DIOXIDE
UTHER DESIGNATIONS: CARBONIC ANHYDRIDE, DRY ICE, CO2, CAS #0124-38-9
DESCRIPTION: MATERIAL IS SUPPLIED IN STEEL CYLINDERS AS A LIQUID UNDER ITS OWN VAPOR PRESSURE (CA. 870 PSIG AT 70 DEG. F ¢21.9 DEG. C|) OR IN A SOLID FORM AS DRY ICE.
MANUFACTURER/SUPPLIER: AVAILABLE FROM SEVERAL SUPPLIERS, INCLUDING: SCIENTIFIC GAS PRODUCTS, ASHLAND CHEMICAL CO., 2330 HAMILTON BLVD., S. PLAINFIELD, NJ 07080; TELEPHONE: (201) 754-7700

****
| 03 - SECTION 2. INGREDIENTS AND HAZARDS |
****

	%	HAZARD DATA
CARBON DIOXIDE, CAS #0124-38-9	>99.5	8-HR TWA: 5000 PPM OR 9000 MG/M3(*) HUMAN, INHALATION, LCLO: 100,000 PPM/1 MIN.
(*) CURRENT OSHA PEL AND ACGIH (1985-86) TLV. NIOSH RECOMMENDED A 10-HR. TWA OF 10,000 PPM WITH A CEILING LEVEL OF 30,000 PPM (10-MINUTE SAMPLE).		RAT, INHALATION, LCLO: 657,000 PPM FOR 15 MIN. RAT (10 DAYS PREGNANT), INHALATION, TCLO: 60,000 PPM/24 HRS.; TERATOGENIC EFFECTS

****
| 04 - SECTION 3. PHYSICAL DATA |
****

BOILING POINT, @1 ATM: -109.3 DEG. F (-78.5 DEG. C)
VAPOR PRESSURE @ 20 DEG. C: 1 ATM
SOLUBILITY IN WATER @ 1 ATM, 20 DEG. C ML/100 ML: 90
VAPOR DENSITY (AIR = 1): 1.5
CRITICAL TEMPERATURE: 87.8 DEG. F (31 DEG. C)
MOLECULAR WEIGHT: 44.01
APPEARANCE AND ODOR: COLORLESS GAS; CLEAR, COLORLESS, VOLATILE LIQUID; OR A WHITE SOLID. ODORLESS. (AT HIGH CONCENTRATIONS AN ACIDIC TASTE IS DETECTABLE.)

****
| 05 - SECTION 4. FIRE AND EXPLOSION DATA |
****

FLASH POINT AND METHOD: NOT FOUND
AUTOIGNITION TEMPERATURE: NOT FOUND
FLAMMABILITY LIMITS IN AIR: NOT FOUND

LOWER: NOT FOUND
UPPER: NOT FOUND
EXTINGUISHING MEDIA: USE EXTINGUISHING MEDIA APPROPRIATE TO THE SURROUNDING FIRE. USE WATER SPRAY TO COOL FIRE-EXPOSED CONTAINERS OR, IF DESIRED, TO INCREASE THE RATE OF EVAPORATION OF THE LIQUID/SOLID IF THE INCREASED RATE CAN BE CONTROLLED. CO2 IS USED AS A FIRE-EXTINGUISHING AGENT PRIMARILY FOR ITS SMOTHERING EFFECT (REDUCTION OF OXYGEN CONCENTRATION TO THE POINT WHERE THE IMMEDIATE ATMOSPHERE CANNOT SUPPORT COMBUSTION). IT IS NOT EFFECTIVE ON FIRES INVOLVING CHEMICALS THAT HAVE THEIR OWN OXYGEN SUPPLY (I.E., CELLULOSE NITRATE); OR ON FIRES INVOLVING REACTIVE METALS (SUCH AS POTASSIUM, SODIUM, MAGNESIUM, ALUMINUM, TITANIUM, AND ZIRCONIUM); OR THEIR HYDRIDES, AS THESE MATERIALS CAN DECOMPOSE CARBON DIOXIDE.
UNUSUAL FIRE/EXPLOSION HAZARDS: THIS MATERIAL IS NONCOMBUSTIBLE AND WILL NOT SUPPORT COMBUSTION. IT PRESENTS NO UNUSUAL EXPLOSION HAZARD UNLESS COMPRESSED GAS IS EXPOSED TO A FIRE, THEN CONTAINERS MAY RUPTURE VIOLENTLY.
SPECIAL FIRE-FIGHTING PROCEDURES: FIRE FIGHTERS SHOULD USE SELF-CONTAINED BREATHING APPARATUS AND WEAR FULLY PROTECTIVE CLOTHING.

****
| 06 - SECTION 5. REACTIVITY DATA |
****

ARBON DIOXIDE IS STABLE. HAZARDOUS POLYMERIZATION CANNOT OCCUR.
CO2 CAN CAUSE VIOLENT POLYMERIZATION OF ACRYLALDEHYDE OR ETHYLENIMINE. IT DECOMPOSES TO CARBON MONOXIDE (CO) AND OXYGEN (O2) WHEN HEATED ABOVE 3092 DEG. F (1700 DEG. C). THIS WEAKLY ACIDIC MATERIAL WILL REACT WITH ALKALINE MATERIALS TO FORM CARBONATES AND BICARBONATES.
AN EXPLOSION CAN OCCUR WHEN CO2 CONTACTS SODIUM PEROXIDE MIXED WITH ALUMINUM OR MAGNESIUM. REACTIVE METALS (SUCH AS ALKALI METALS, MAGNESIUM, ALUMINUM, TITANIUM, OR ZIRCONIUM); THEIR HYDRIDS; AND MATERIALS LIKE DIETHYL MAGNESIUM, MOIST CESIUM OXIDE, OR LITHIUM ACETYLIDE WITH AMMONIA CAN IGNITE IN A CO2 ATMOSPHERE. DRY ICE CAN FORM SHOCK-SENSITIVE MIXTURES WITH SODIUM, POTASSIUM, OR SODIUM-POTASSIUM ALLOY.
HAZARDOUS DECOMPOSITION PRODUCTS: MAY INCLUDE CARBON MONOXIDE.

****
| 07 - SECTION 6. HEALTH HAZARD INFORMATION |
****

CARBON DIOXIDE IS NOT LISTED AS A CARCINOGEN BY THE NTP, IARC, OR OSHA. THIS MATERIAL IS RELATIVELY INERT. IT CAN CAUSE ASPHYXIATION BY DISPLACING OXYGEN. SYMPTOMS OF EXPOSURE DEPEND ON THE DEGREE AND DURATION OF OXYGEN DEFICIENCY. SYMPTOMS OF OVEREXPOSURE INCLUDE HEADACHE, DIZZINESS, SHORTNESS OF BREATH, MUSCULAR WEAKNESS, DROWSINESS, AND RINGING IN THE EARS. HIGH CONCENTRATIONS PRODUCE A FAINT "ACIDIC" TASTE AND CAN CAUSE PARALYSIS OF THE RESPIRATORY CONTROL CENTER OF THE NERVOUS SYSTEM: 2% (20,000 PPM) BY VOLUME IN THE ATMOSPHERE WILL CAUSE A 50% INCREASE IN THE RATE OF BREATHING; 3%, A 100% RATE INCREASE; >4% PRODUCES LABORED BREATHING AND IS DANGEROUS FOR EVEN A FEW MINUTES OF EXPOSURE; >12% CAUSES RAPID UNCONSCIOUSNESS. CONTACT WITH LIQUID OR SOLID CO2 CAN PRODUCE FROSTBITE AND FREEZE BURNS.
BECAUSE CO2 IS AN ASPHYXIANT, PRIMARY ENTRY IS BY INHALATION. ACUTE EFFECT IS ASPHYXIATION.

FIRST AID:
CONTACT WITH LIQUID/SOLID: PROMPTLY FLUSH AREAS AFFECTED WITH LOTS OF TEPID WATER TO REDUCE FREEZING OF TISSUE. (DO NOT APPLY DIRECT HEAT TO AFFECTED AREA!) LOOSELY APPLY DRY, STERILE, BULKY DRESSINGS TO PROTECT AREA FROM INFECTION AND FROM FURTHER INJURY. GET MEDICAL HELP.(*)
INHALATION: (CAUTION! WOULD-BE RESCUERS NEED TO BE CONCERNED WITH THEIR OWN SAFETY IN OXYGEN-DEFICIENT AREAS. USE SELF-CONTAINED BREATHING EQUIPMENT.) REMOVE VICTIM TO FRESH AIR. QUICKLY RESTORE AND/OR SUPPORT HIS BREATHING AS REQUIRED, ADMINISTERING OXYGEN IF AVAILABLE. GET MEDICAL HELP.(*)
(*)GET MEDICAL ASSISTANCE = IN PLANT, PARAMEDIC, COMMUNITY. GET MEDICAL HELP FOR FURTHER TREATMENT, OBSERVATION, AND SUPPORT AFTER FIRST AID.

****
| 08 - SECTION 7. SPILL, LEAK, AND DISPOSAL PROCEDURES |
****

NOTIFY SAFETY PERSONNEL OF MAJOR LEAKS OR SPILLS. EVACUATE AREA UNTIL VENTILATION CAN RESTORE A SAFE OXYGEN LEVEL. EMERGENCY PERSONNEL NEED SELF-CONTAINED BREATHING EQUIPMENT AND PROTECTIVE CLOTHING AGAINST CONTACT WITH SOLID MATERIAL (DRY ICE).
DISPOSAL: REMOVE THE SCRAP SOLID ("SNOW" OR DRY ICE), TAKE THE LEAKING CYLINDER OUTDOORS, OR PLACE IT INTO A HOOD WITH GOOD FORCED VENTILATION. ALLOW GAS TO BE DISCHARGED AT A MODERATE RATE. DEFECTIVE CYLINDERS SHOULD BE TAGGED TO INDICATE A DEFECT. CLOSE THE VALVE AND RETURN THE DEFECTIVE CYLINDER TO THE SUPPLIER.

****
| 09 - SECTION 8. SPECIAL PROTECTION INFORMATION |
****

RESPIRATOR: PROVIDE AIR-SUPPLIED OR SELF-CONTAINED BREATHING EQUIPMENT FOR EMERGENCY OR NONROUTINE SITUATIONS WHERE THE LEVEL OF CARBON DIOXIDE IS EXCESSIVE.
VENTILATION: PROVIDE ADEQUATE GENERAL AND LOCAL EXHAUST VENTILATION TO PREVENT WORKPLACE ATMOSPHERES FROM BECOMING OXYGEN DEFICIENT (MINIMUM O2 VOLUME = 18%). CARBON DIOXIDE IS HEAVIER THAN AIR AND ACCUMULATES ALONG THE FLOOR AND IN DEPRESSIONS.
SPECIAL CONSIDERATIONS: USE A SAFETY LINE AND A STANDBY WORKER WHEN RESPIRATOR-PROTECTED PERSONNEL ENTER A HAZARDOUS CARBON DIOXIDE-ENRICHED AREA. (THE STANDBY WORKER SHOULD HAVE A SELF-CONTAINED BREATHING APPARATUS IMMEDIATELY AVAILABLE.) THOSE WORKING WITH CARBON DIOXIDE SHOULD WEAR APPROVED INSULATED GLOVES, SAFETY GLASSES, AND OTHER PROTECTIVE CLOTHING, AS REQUIRED BY CONDITIONS OF USE, TO PREVENT ANY SKIN CONTACT WITH CARBON DIOXIDE. SAFETY SHOES ARE RECOMMENDED FOR THOSE HANDLING CYLINDERS OF GASES. CONTACT LENSES POSE A SPECIAL HAZARD; SOFT LENSES MAY ABSORB IRRITANTS, AND ALL LENSES CONCENTRATE IRRITANTS.

****
| 10 - SECTION 9. SPECIAL PRECAUTIONS AND COMMENTS |
****

STORAGE SEGREGATION: STORE IN A COOL, DARK, WELL-VENTILATED AREA AWAY FROM SOURCES OF HEAT.
SPECIAL HANDLING/STORAGE: HANDLING, STORAGE, AND UTILIZATION OF

COMPRESSED-GAS CYLINDERS MUST BE IN ACCORDANCE WITH 29 CFR 1910.101(6). DO NOT STORE THEM IN ENCLOSED OR SUBSURFACE AREAS.

OTHER PRECAUTIONS: DO NOT PUT DRY ICE IN A CLOSED CONTAINER WHERE EVOLVED GAS CANNOT ESCAPE. USE AN UNSEALED, INSULATED STORAGE CHEST OR CONTAINER FOR DRY ICE. OCCUPATIONAL EXPOSURES MAY OCCUR IN PLACES SUCH AS MINES, SILOS, VATS, OR SHIPS' HOLDS, WHERE FERMENTATION PROCESSES MAY DEPLETE OXYGEN WITH CARBON DIOXIDE.

DOT CLASSIFICATION: NONFLAMMABLE GAS

UN1013 (GAS); UN2187 (LIQUID); UN1845 (SOLID)

DATA SOURCE(S) CODE: 1-10, 12, 14, 17-19, 25, 26, 31, 38, 47, 55, 82, 84, CK

MATERIAL SAFETY DATA SHEET

EMERGENCY PHONE NUMBER:
CHEMTREC 800/424-9300

PRODUCT NAME: 50% CAUSTIC SODA-RAYON

DATE 03-15-93

SUPPLIER: J. B. WATTS COMPANY, INC.
50 WEST 60TH STREET
CHICAGO, IL 60621
(312)324-4900

I. PRODUCT IDENTIFICATION

HMIS HAZARD RATINGS

HEALTH HAZARD 3 FIRE HAZARD 0 REACTIVITY 2

Based on the National Paint & Coatings Association HMIS rating system.

SARA/TITLE III HAZARD CATEGORIES (See Section X)

Immediate (ACUTE) Health: YES
Delayed (Chronic) Health: NO
Fire Hazard: NO
Reactive Hazard: YES
Sudden Release of Pressure: NO

CHEMICAL NAME: Sodium Hydroxide CAS NUMBER: 1310-73-2

SYNONYMS/COMMON NAMES: Sodium Hydroxide; NaOH; Caustic Soda

CHEMICAL FAMILY: Liquid Alkalies

CHEMICAL FORMULA: NaOH

DOT PROPER SHIPPING NAME: Sodium Hydroxide, Liquid

DOT HAZARD CLASS: Corrosive Material

DOT I.D. NUMBER: UN1824

DOT HAZARDOUS SUBSTANCE: RQ 1000#

II. HEALTH HAZARD INFORMATION

EMERGENCY AND FIRST AID PROCEDURES

EYES:

OBJECT IS TO FLUSH MATERIAL OUT IMMEDIATELY THEN SEEK MEDICAL ATTENTION. IMMEDIATELY flush eyes with large amounts of water for at least 15 minutes forcibly holding lids apart to ensure flushing of entire surface. Washing eyes within several seconds is essential to achieve maximum effectiveness. SEEK MEDICAL ATTENTION IMMEDIATELY.

II. HEALTH HAZARD INFORMATION (continued)

SKIN:

IMMEDIATELY wash with plenty of water for at least 15 minutes. Remove contaminated clothing and footwear. Wash clothing before reuse and discard footwear which cannot be decontaminated. SEEK MEDICAL ATTENTION IMMEDIATELY.

INHALATION:

Remove to fresh air; if breathing is difficult have trained person administer oxygen. If respiration stops, give mouth-to-mouth resuscitation. GET MEDICAL ATTENTION.

INGESTION:

NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. If available, give several glasses of milk. If vomiting occurs spontaneously, keep airway clear. SEEK MEDICAL ATTENTION IMMEDIATELY.

ROUTES OF EXPOSURE

INHALATION:

Breathing dust, mist or spray may cause damage to the upper respiratory tract and lung tissue proper which could produce chemical pneumonia, depending upon severity of exposure.

SKIN:

Contact produces severe burns and destroys tissues. Irritation may be delayed.

EYE CONTACT:

Causes severe burns that result in damage to the eyes and possibly blindness.

INGESTION:

Causes severe burns to mucous membranes of the mouth, throat, esophagus, and stomach.

EFFECTS OF OVEREXPOSURE

ACUTE:

Corrosive to all body tissues by all routes of exposure. The effect of local dermal exposure may consist of multiple areas of superficial destruction of the skin or of primary irritant dermatitis. Similarly, inhalation of dust, spray, or mist may result in varying degrees of irritation or damage to the respiratory tract tissues and an increased susceptibility to respiratory illness.

CHRONIC:

No known chronic effects.

TOXICOLOGY DATA:

Caustic soda is a corrosive material.

Acute Dermal LD 50 (rabbit) 1350 mg/kg

Human Dermal Exposure

Regardless of concentrations, the severity of damage and extent of its irreversibility increases with length of contact time. Prolonged contact with sodium hydroxide solutions of ≥ 1% can cause a high degree of tissue destruction. The latent period, following skin contact during which no sensation of irritation occurs, varies from several hours for 0.4 - 4% solution to 3 minutes with concentrations of 25% or greater.

III. IMPORTANT COMPONENTS

CAS NUMBER / NAME
7732185 Water

EXPOSURE LIMITS
PEL = Not Established
TLV = Not Established

PERCENTAGE
VOL 0-68.10
WT 48.50-91

COMMON NAMES:

Listed On (List Legend Below):
19 23

1310732 Sodium hydroxide (Na(OH))

EXPOSURE LIMITS
PEL = 2 mg/m3, Ceiling
TLV = 2 mg/m3, Ceiling

PERCENTAGE
VOL 0-31.90
WT 9-51.50

COMMON NAMES:
CAUSTIC SODA

Listed on (List Legend Below):
13 18 21

7647145 Sodium chloride (NaCl)

EXPOSURE LIMITS
PEL = Not Established
TLV = Not Established

PERCENTAGE
VOL ND
WT 0-1.30

COMMON NAMES:
SALT

Listed On (List Legend Below):
23

7775099 Chloric acid, sodium salt

EXPOSURE LIMITS
PEL = Not Established
TLV = Not Established

PERCENTAGE
VOL ND
WT 0-0.30

COMMON NAMES:
SODIUM CHLORATE

Listed On (List Legend Below):
12 21

All components of this product that are required to be on the TSCA Inventory are listed on the inventory.

Not listed as carcinogen - IARC, NTP, OSHA

LIST LEGEND: 12 PA HAZARDOUS SUBSTANCE
13 PA ENVIRONMENTAL HAZ SUBSTANCE
18 NY HAZARDOUS SUBSTANCES
19 PA REQUIREMENT - 3% OR GREATER
21 NJ SPECIAL HEALTH HAZ SUB
23 NJ REQUIREMENT - 1% OR GREATER

IV. FIRE AND EXPLOSION DATA

FLASH POINT: NA

AUTOIGNITION TEMPERATURE: Nonflammable

FLAMMABLE LIMITS IN AIR, % BY VOLUME- UPPER: NA
LOWER: NA

EXTINGUISHING MEDIA:

This product is not combustible. Foam, carbon dioxide or dry chemical may be used where this product is stored.

SPECIAL FIRE FIGHTING PROCEDURES:

Wear full protective clothing. Avoid direct contact of this product with water as this can cause a violent exothermic reaction.

UNUSUAL FIRE AND EXPLOSION HAZARD:

Direct contact with water can cause violent exothermic reaction.

V. SPECIAL PROTECTION

VENTILATION REQUIREMENTS:

Special ventilation is not required under normal use. Use local exhaust ventilation where dust, mist, or spray may be generated. NOTE: Where carbon monoxide or other reaction products may be generated, special ventilation may be required.

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY:

Respiratory protection is not required under normal use. Use NIOSH/MSHA approved respirators where dust, mist, or spray may be generated.

EYE:

Wear chemical safety goggles plus full face shield to protect against splashing (ANSI Z87.1).

GLOVES:

Wear chemical resistant gloves such as natural and butyl rubber. Gloves may be decontaminated by washing with mild soap and water.

OTHER CLOTHING AND EQUIPMENT:

Impervious protective clothing and chemically resistant safety shoes should be worn to minimize contact. Wash contaminated clothing with soap and water and dry before reuse. (ANSI Z358.1) Emergency shower and eyewash facility should be accessible.

VI. PHYSICAL DATA

BOILING POINT @ 760 mm Hg: 143°C (289°F)

FREEZING POINT: 12.1°C (54°F)

VAPOR PRESSURE: 13 mm Hg @ 60°C

SPECIFIC GRAVITY ($H_2O = 1$): 1.54 @ 15.6°C

SOLUBILITY IN H_2O % BY WT: Completely soluble

VAPOR DENSITY (Air = 1): NA

APPEARANCE AND ODOR: Clear liquid with no distinct odor.

pH: 7.5% solution has pH 14.0

BULK DENSITY: 12.8 lbs/gal.

VII. REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY:

Under normal conditions, this product is stable.

INCOMPATIBILITY:

See Handling and Storage (Section VIII). Avoid direct contact with water. This product may be added slowly to water or acids with dilution and agitation to avoid a violent exothermic reaction. When handling this product, avoid contact with aluminum, tin, zinc, and alloys containing these metals. Do not mix with strong acids without dilution and agitation to prevent violent or explosive reaction. Avoid contact with leather, wool, acids, organic halogen compounds and organic nitro compounds.

HAZARDOUS DECOMPOSITION PRODUCTS:

None known.

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION:

Material is not known to polymerize.

VIII. HANDLING AND STORAGE

HANDLING AND STORAGE PRECAUTIONS:

Do not get into eyes, on skin, on clothing.
Avoid breathing dust, mists, or spray.
Do not take internally.
Use with adequate ventilation and employ respiratory protection when exposure to dust, mist or spray is possible.
When handling, wear chemical splash goggles, face shield, rubber gloves and protective clothing.
Wash thoroughly after handling or contact - exposure can cause burns which are not immediately painful or visible.
Keep container closed.
Product can react violently with water, acids, and other substances - read Special Mixing and Handling Instructions below carefully before using.
Product is corrosive to tin, aluminum, zinc and alloys containing these metals, and will react violently with these metals in powder form.
Hazardous carbon monoxide gas can form upon contact with food and beverage products in enclosed spaces and can cause death. Follow appropriate tank entry procedures (ANSI Z117.1).

SPECIAL MIXING AND HANDLING INSTRUCTIONS:

Product can react violently with water. Considerable heat is generated when product is mixed with water. Therefore, when making solutions always carefully follow these steps:

ALWAYS wear ALL protective clothing described above. NEVER add water to product. ALWAYS add product - with constant stirring - slowly to surface of lukewarm (80-100°F) water, to assure product is being completely dissolved as it is added.

If product is added too rapidly, or without stirring, and becomes concentrated at bottom of mixing vessel, excessive heat may be generated, resulting in DANGEROUS boiling and spattering, and a possible IMMEDIATE AND VIOLENT ERUPTION of highly caustic solution.

NOTE: Never add more product than can be absorbed by solution while maintaining temperature below 200°F (@ sea level) to prevent boiling and spattering.

Product can react EXPLOSIVELY with acids, aldehydes, and many other organic chemicals - when mixing product with solutions containing such chemicals, follow all of above mixing instructions, and add product very gradually, while stirring constantly.

ALWAYS empty and clean containers of all residues before adding product, to avoid possible EXPLOSIVE reaction between product and unknown residue.

Returnable containers should be shipped in accordance with supplier's recommendations. Return shipments should comply with all federal, state, and DOT regulations. All residual caustic soda should be removed from containers prior to disposal.

IX. ENVIRONMENTAL PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Leaks should be stopped. Spills should be contained and cleaned up immediately. Spills should be removed by using a vacuum truck. Neutralize remaining traces of material with any dilute inorganic acid such as hydrochloric, sulfuric, nitric, phosphoric, and acetic acid. The spill area should then be flushed with water followed by liberal covering of sodium bicarbonate. All clean-up material should be removed and placed in approved containers, labeled and stored in a safe place to await proper treatment or disposal. Spills on areas other than pavement, e.g., dirt or sand, may be handled by removing the affected soils and placing in approved containers. Persons performing clean-up work should wear adequate personal protective equipment and clothing. Spills or releases should be reported, if required, to the appropriate local, state and federal regulatory agencies.

CAUTION: Caustic soda may react violently with acids and water.

WASTE DISPOSAL METHOD:

The materials resulting from clean-up operations may be hazardous wastes and, therefore, subject to specific regulations. Package, store, transport, and dispose of all clean-up materials and any contaminated equipment in accordance with all applicable federal, state, and local health and environmental regulations. Shipments of waste materials may be subject to manifesting requirements per applicable regulations. Appropriate disposal will depend on the nature of each waste material and should be performed by competent and properly permitted contractors. Ensure that all responsible federal, state, and local agencies receive proper notification of spill and disposal methods.

X. ADDITIONAL INFORMATION

OSHA Standard 29CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, material safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Material Safety Data Sheet available to your employees.

To aid our customers in complying with regulatory requirements, SARA Title III hazard categories for this product are indicated in Section I. If the word "YES" appears next to any category, this product may be reportable by you under the requirements of 40 CFR Part 370. Please consult those regulations for details.

CAS = Chemical Abstract Service Number
PEL = OSHA Permissible Exposure Limit
TLV = ACGIH Threshold Limit Value, Current
ND = No relevant information found or not available
CORP = Corporate Exposure Limit
* = See Chronic Effects Information
NA = Not applicable

Recd: 4/95

MILES

MATERIAL SAFETY DATA SHEET

MILES INC.
INDUSTRIAL CHEMICALS DIVISION
Mobay Road
Pittsburgh, PA 15205-9741

TRANSPORTATION EMERGENCY
CALL CHEMTREC: 800-424-9300
DISTRICT OF COLUMBIA: 202-483-7616

NON-TRANSPORTATION
MILES EMERGENCY PHONE...: (412) 923-1800
MILES INFORMATION PHONE.: (800) 662-2927

I. PRODUCT IDENTIFICATION:

PRODUCT NAME....: [redacted]
PRODUCT CODE.....: V135
CHEMICAL FAMILY.....: Diamines
CHEMICAL NAME.....: Hydrazine
SYNONYMS.....: 54.7 % Hydrazine Hydrate; Aqueous Hydrazine Solution; Diamide Hydrate
FORMULA.....: N2H4.H2O

II. HAZARDOUS INGREDIENTS:

INGREDIENT NAME /CAS NUMBER		EXPOSURE LIMITS	CONCENTRATION (%)
Hydrazine 302-01-2	OSHA :	.100 ppm TWA - Skin .100 mg/m3 TWA - Skin	Approx. 35 %
	ACGIH:	.100 ppm TWA - Skin .130 mg/m3 TWA - Skin	

III. PHYSICAL PROPERTIES:

PHYSICAL FORM.....: Liquid
COLOR.....: Colorless to slightly yellow
ODOR.....: Ammonia like (fishy)
ODOR THRESHOLD.....: 3 to 5 ppm
MOLECULAR WEIGHT.....: (For hydrazine hydrate) 50.06
pH .....: Greater than 12 @ 350 g/l water @ 68 F (20 C), original soln
BOILING POINT.....: Approx. 228.9 F (109.4 C)
MELTING/FREEZING POINT....: Approx. -85 F (-65 C)
VISCOSITY.....: (Dynamic): Approx. 1.26 mPas @ 68 F (20 C)
SOLUBILITY IN WATER .....: Soluble
SPECIFIC GRAVITY .....: Approx. 1.021 @ 68 F (20 C)

III. PHYSICAL PROPERTIES (Continued)

BULK DENSITY.....: Not Established
% VOLATILE BY VOLUME.....: 100 %
VAPOR PRESSURE .....: 15 mbar @ 68 F (20 C)
VAPOR DENSITY .....: Approx. 1 (Air = 1)

IV. FIRE AND EXPLOSION DATA:

FLASH POINT.....: Greater than 212 F (100 C); DIN 51758 (PMCC).
FLAMMABLE LIMITS:
UPPER EXPLOSIVE LIMIT (UEL)(%): 83.4 % by volume in air at 1000 mbar
LOWER EXPLOSIVE LIMIT (LEL)(%): 9.3 % by volume in air at 1000 mbar
AUTO-IGNITION TEMPERATURE.....: Greater than 590 F (310 C).
EXTINGUISHING MEDIA.....: Dry Chemical; Foam; Carbon Dioxide; Water spray for large fires.
SPECIAL FIRE FIGHTING PROCEDURES: Firefighters should wear full protective clothing including self-contained breathing apparatus. Under fire conditions, hazardous vapors and gases may be emitted. Containers exposed to excessive heat may rupture violently. Use a water spray to keep containers cool. Fight fires from a protected area.

V. HUMAN HEALTH DATA:

ROUTE(S) OF ENTRY.....: Inhalation; Eye Contact; Skin Contact; Skin Absorption

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:
ACUTE INHALATION.....: In sufficient concentrations, hydrazine vapors will cause irritation to the upper respiratory tract. Symptoms may include coughing, sore throat, dizziness and nausea.
CHRONIC INHALATION.....: Repeated or prolonged inhalation of hydrazine may lead to liver and kidney damage, hemolysis (destruction) of red blood cells, and pneumonia.
ACUTE SKIN CONTACT.....: Direct skin contact with this product may cause local irritation resulting in possible symptoms such as discomfort, itching, reddening and swelling. Hydrazine can be absorbed through the skin. Extensive skin contamination may result in fatal or near fatal consequences due to hepatic (liver) effects, central nervous system effects or other systemic effects.
CHRONIC SKIN CONTACT.....: Prolonged or repeated skin contact may cause dermatitis (inflammation) in the form of erythema (reddening of the skin), blistering or eczema-like (dermatitis) rash. Absorption of hydrazine may lead to liver and kidney damage and hemolysis of red blood cells. Some individuals have exhibited allergic skin reactions which disappear when removed from exposure to hydrazine.
ACUTE EYE CONTACT.....: Direct eye contact with hydrazine causes

irritation. Possible symptoms may include discomfort, reddening and tearing. Severe eye exposure to hydrazine vapors has been reported to cause temporary blindness, lasting for as long as twenty-four (24) hours. Eye irritation may be delayed following exposure to hydrazine vapors.

ACUTE INGESTION.....: Hydrazine is irritating to the mucous membranes. Hydrazine is toxic by ingestion. Ingestion can result in fatal to near fatal consequences due to hepatic (liver) damage, central nervous system effects or other systemic effects.

CHRONIC INGESTION.....: Repeated or prolonged absorption of hydrazine into the body may lead to liver and kidney damage and hemolysis of red blood cells.

OTHER EFFECTS OF EXPOSURE.....: While hydrazine is known to be an animal carcinogen, no link has been established to cancer in humans. In an epidemiology study of hydrazine manufacturing workers covering more than thirty (30) years has found no unusual excess of cancer. (1)

CARCINOGENICITY

NTP.....: Hydrazine is listed as a Substance Reasonably Anticipated to be Carcinogenic in the National Toxicology Program (NTP) Seventh Annual Report on Carcinogens, 1994.

IARC.....: Hydrazine is listed by the International Agency for Research on Cancer (IARC) as Group 2B, Possible Human Carcinogen; human evidence inadequate, animal evidence sufficient.

OSHA.....: Not regulated.

OTHER.....: Based on the results of animal studies, the ACGIH has listed hydrazine in appendix A2, Suspected Human Carcinogens in the ACGIH Threshold Limit Values for 1993-94.

MEDICAL CONDITIONS

AGGRAVATED BY EXPOSURE.....: Persons with preexisting eye, skin or respiratory tract, or impaired liver and/or kidney function conditions may be more susceptible to the effects of this chemical.

EXPOSURE LIMITS.....: Refer to Section II.

1 Br. J. Ind. Med. 41, 31-34.

VI. EMERGENCY AND FIRST AID PROCEDURES:

FIRST AID FOR EYES.....: Flush the eyes with large amounts of running water at room temperature for at least 15 minutes and see a physician, preferably an ophthalmologist, immediately.

FIRST AID FOR SKIN.....: Wash immediately with cool, running water while removing contaminated clothing and shoes. Avoid using hot water and hard rubbing. Consult a physician, particularly if exposure is extensive, prolonged, or irritation persists after washing. Wash contaminated clothing thoroughly before reuse.

VI. FIRST AID PROCEDURES (Continued)

FIRST AID FOR INHALATION: Persons acutely overexposed to hydrazine vapors should be removed from the contaminated environment as quickly as possible by properly protected rescue personnel. Trained persons can administer oxygen to ease breathing. Consult a physician immediately.

FIRST AID FOR INGESTION.: Accidental ingestion of hydrazine solutions should be treated by taking large amounts of water. Never give anything by mouth to an unconscious person. Inducing vomiting is indicated in conscious patients, especially when there has been ingestion within the last thirty (30) minutes. A physician should be contacted immediately.

NOTE TO PHYSICIAN.....: There are no definitive antidotes for hydrazine exposure. Physicians should treat exposed persons symptomatically. Overexposed persons should be closely observed for symptoms of central nervous system involvement, respiratory irritation, bronchitis or edema, and treat accordingly. Parenteral pyridoxine administration has been used by some physicians to treat patients suffering acute central nervous system effects. (In one reported case, following pyridoxine administration parenterally, there was a rapid reversal of coma in 4 hours in a patient who had been comatose for over 60 hours.)

VII. EMPLOYEE PROTECTION RECOMMENDATIONS:

EYE PROTECTION REQUIREMENTS.....: Splash goggles or full face shield.

SKIN PROTECTION REQUIREMENTS.....: PVC, neoprene or nitrile splash suits, boots and gloves should be worn when spray or splash protection is required.

RESPIRATOR REQUIREMENTS.....: Whenever the hydrazine levels exceed the current Permissible Exposure Limit (0.1 ppm), a positive pressure supplied air respirator is recommended.

VENTILATION REQUIREMENTS.....: Use local exhaust or other means to maintain airborne hydrazine concentration below the current Permissible Exposure Limit (0.1 ppm).

ADDITIONAL PROTECTIVE MEASURES.....: Safety showers and eyewash stations should be readily available. Do not store or transfer hydrazine solutions in open containers. Because hydrazine can be absorbed into the body by all common routes of exposure, protective equipment must be used. Personal protective equipment is not an adequate substitute for safe work practices, proper equipment design and good maintenance practices.

VIII. REACTIVITY DATA:

STABILITY.....: Stable at normal temperatures and pressures.

HAZARDOUS POLYMERIZATION...: Will not occur.

INCOMPATIBILITIES.....: Brisk or dangerous reactions with strong oxidizers, catalytic metals (Lead, Copper, Zinc, Cadmium, Cobalt, Molybdenum, Gold and Silver) and certain alloys (such as Bronze and Brass).

VIII. REACTIVITY DATA (Continued)

INSTABILITY CONDITIONS.....: Excessive temperatures. (Also, see INCOMPATIBILITIES)
DECOMPOSITION TEMPERATURE..: Refer to DECOMPOSITION PRODUCTS.
DECOMPOSITION PRODUCTS.....: Under catalytic influence or elevated temperatures, H2, NH3 and N2 and other toxic or flammable nitrogen compounds can be formed. Slow reaction with oxygen from the air is possible at room temperature.

IX. SPILL AND LEAK PROCEDURES:

SPILL OR LEAK PROCEDURES....: Use appropriate protective equipment. Contain small spills by diking and digging a containment pit sufficiently large to hold at least 10 times the spill volume. Dilute to approximately 10 times the volume with water. Add sufficient dry commercial calcium hypochlorite (dry chlorine, HTHR, dry bleach) to completely oxidize the hydrazine. Use 7-10 lbs per pound of hydrazine (1 lb. of 35 % Hydrazine = 0.35 lbs. N2H4). Calcium hypochlorite or other oxidizing agents should never be allowed to mix with undiluted hydrazine solutions. The resulting reaction is very vigorous, releasing large amounts of heat and gas. Contaminated surfaces should be treated with household bleach or calcium hypochlorite solution to oxidize the residual hydrazine. In the event of larger spills, contain product, secure area and notify Miles at (412-923-1800 during normal working hours of 9 am to 5 pm EST) or CHEMTREC at (800-424-9300).
WASTE DISPOSAL METHOD.....: Oxidize or incinerate in accordance with federal, state and local environmental control regulations.

X. SPECIAL PRECAUTIONS & STORAGE DATA:

STORAGE TEMPERATURE(MIN/MAX): Ambient/122 F (50 C).
SHELF LIFE.....: Unlimited in tightly closed containers.
SPECIAL SENSITIVITY.....: Extreme heat, oxidizing materials or catalytic metals.
HANDLING/STORAGE PRECAUTIONS: When handling hydrazine, utilize protective clothing and equipment. Do not get in eyes or on skin. Do not breathe vapors or mists. Wash thoroughly after handling. Store in a dry place away from heat {below 122 F (50 C)} and away from ignition sources and oxidants, preferably outdoors. Shelter drums stored outdoors from direct sunlight. For indoor storage areas, continuous ventilation should be provided. This product may become electrostatically charged during filling and transferring. Make sure equipment is properly bonded and grounded. Store away from food and beverages.

XI. SHIPPING INFORMATION:

TECHNICAL SHIPPING NAME.....: Hydrazine solution 35 %
FREIGHT CLASS BULK.....: Item 50093 Compounds, Boiler Cleanirg, Preserving
FREIGHT CLASS PACKAGE.....: Item 50093 Compounds, Boiler Cleanirg, Preserving
PRODUCT LABEL.....: Certified Hydrazine 35 %

DOT (HM-181) (DOMESTIC SURFACE)

PROPER SHIPPING NAME.....: Poisonous Liquids, N.O.S.
HAZARD CLASS OR DIVISION .....: 6.1
UN/NA NUMBER.....: UN2810
PACKAGING GROUP .....: PG III
DOT PRODUCT RQ lbs (kgs).....: 2.8 lbs (1.3 kgs)
HAZARD LABEL(s).....: Keep Away From Food
HAZARD PLACARD(s).....: Keep Away From Food

IMO / IMDG CODE (OCEAN)

PROPER SHIPPING NAME.....: Poisonous Liquids, N.O.S.
HAZARD CLASS DIVISION NUMBER...: 6.1
UN NUMBER.....: UN2810
PACKAGING GROUP.....: III
HAZARD LABEL(s).....: Keep Away From Food
HAZARD PLACARD(s).....: Keep Away From Food

ICAO / IATA (AIR)

PROPER SHIPPING NAME.....: Toxic Liquid, Inorganic, N.O.S.
HAZARD CLASS DIVISION NUMBER...: 6.1
UN NUMBER.....: UN3287
SUBSIDIARY RISK.....: None
PACKING GROUP.....: III
HAZARD LABEL(s).....: Poison
RADIOACTIVE?.....: Non-Radioactive
PASSENGER AIR - MAX. QTY. .....: 60 L
PASSENGER INSTRUCTION NUMBER...: 611
CARGO AIR - MAX. QTY. .....: 220 L
CARGO AIR INSTRUCTION NUMBER...: 618

XII. ANIMAL TOXICITY DATA:

ACUTE TOXICITY

Continued on next page

XII. ANIMAL TOXICITY DATA (Continued)

ORAL LD50.....: 60 mg of hydrazine/kg (Rat).
DERMAL LD50.....: For 35 % hydrazine solution: greater than 200 mg/kg (Rabbit; DOT method); For hydrazine: 91 mg/kg (Rabbit).
INHALATION LC50....: For anhydrous hydrazine, LC50 = 570 ppm (Rat, 4 hours); For aerosols generated from a 64 % hydrazine solution, LC50 = 6.5 mg/L (5000 ppm) - the LC50 (1 hour) estimated in terms of hydrazine equivalents, LC50 = 4.2 mg/L (3200 ppm). (1)
EYE EFFECTS.....: Irritating.
SKIN EFFECTS.....: Not Corrosive (Rabbit; DOT protocol).
SENSITIZATION.....: Some individuals (humans) have exhibited allergic skin reactions.
CHRONIC TOXICITY.....: Several studies show increased tumor incidence in mice and rats following long term oral or intraperitoneal administration of hydrazine or its salts. The U.S. Air Force conducted a study concerning the chronic inhalation toxicity of hydrazine. The study concluded that hydrazine is a relatively weak tumorigen able to induce respiratory tumors in a dose related incidence at 1.0 and 5.0 ppm.
OTHER TOXICITY DATA...: (Mutagenic, Teratogenic, Reproductive Tests): Hydrazine has demonstrated mutagenic potential in several test systems such as bacteria, phage, higher plants, drosophila, and the host-mediated assay. It was negative in the dominant lethal assay in mice. Dermal contact with hydrazine at a dose causing skin damage and systemic effects has produced embryolethality in rats.
AQUATIC TOXICITY.....: Gold orfe (Leuciscus idus), LC50 (48 hrs.): 0.75 mg/l. Do not allow to escape into waters, wastewater or soil.

1 Huntingdon Research Centre, July 1993 (sponsored by the Chemical Manufacturer's Association, CMA).

XIII. FEDERAL REGULATORY INFORMATION:

OSHA STATUS.....: This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
TSCA STATUS.....: On TSCA Inventory
CERCLA REPORTABLE QUANTITY..: Hydrazine: 1 lb. (0.454 kg).
SARA TITLE III:
SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES..: Hydrazine, CAS# 302-01-2, Approx 35 %.
SECTION 311/312 HAZARD CATEGORIES.....: Immediate Health Hazard; Delayed Health Hazard; Reactive Hazard
SECTION 313 TOXIC CHEMICALS.....: Hydrazine, CAS# 302-01-2, Approx 35 %.
RCRA STATUS.....: When discarded in its purchased form, this product is a listed RCRA hazardous waste and should be managed as a hazardous waste. (40 CFR 261.20-24) Hydrazine has been assigned the

XIII. FEDERAL REGULATORY INFORMATION (Continued)

hazardous waste number U133. Any contaminated soil, water or debris resulting from the cleanup of a hydrazine spill is considered to be a hazardous waste.

XIV. OTHER REGULATORY INFORMATION:

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

COMPONENT NAME /CAS NUMBER	CONCENTRATION	STATE CODE
Hydrazine 302-01-2	Approx. 35 %	PA2, CA, MA, NJ2, NJ3
Water 7732-18-5	Approx. 65 %	PA3, NJ4

CA = California Proposition 65
MA = Massachusetts Hazardous Substance List
NJ2 = New Jersey Environmental Hazardous Substance List
NJ3 = New Jersey Special Health Hazardous Substance List
NJ4 = New Jersey Other - included in 5 predominant ingredients > 1%
PA2 = Pennsylvania Special Substances List
PA3 = Pennsylvania Non-hazardous present at 3% or greater.

HMIS RATINGS:	Health	Flammability	Reactivity
	2*	1	1

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe
*=Chronic Health Hazard

Miles' method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS ratings are provided by Miles as a customer service.

XV. APPROVALS:

REASON FOR ISSUE.....: Revise Section V and Section XI (IATA)
PREPARED BY.....: D. P. Kelly
APPROVED BY.....: J. M. Mostowy
APPROVAL DATE.....: 12/28/94

XV. APPROVALS (Continued)

SUPERSEDES DATE.....: 02/21/94
MSDS NUMBER.....: 02353

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Miles Inc. The data on this sheet relates only to the specific material designated herein. Miles Inc. assumes no legal responsibility for use or reliance upon these data.

THE POWER GROUP, INC.
10470 W. 164TH PLACE
ORLAND PARK, IL 60462

BUSINESS PHONE: 708/403-5656
FOR EMERGENCY HEALTH & SAFETY INFORMATION: 800/424-9300

TRADE NAME: PWR-FLOC AE-225

HAZARDOUS INGREDIENTS

CAS NO.	CHEMICAL NAME	PERCENT
79-06-1	Polyacrylamide	20-30%
8030-30-6	Petroleum Distillate	20-40%

HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: 200 ppm IS THE TLV FOR PETROLEUM HYDROCARBON SOLVENT.

PRIMARY ROUTES OF ENTRY: INHALATION, SKIN CONTACT, EYE

EFFECTS OF OVEREXPOSURE: SEE EYE CONTACT, SKIN CONTACT, AND INHALATION FOR EFFECTS OF OVEREXPOSURE.

EYE CONTACT: WILL CAUSE EYE IRRITATION.

SKIN CONTACT: REPEATED OR PROLONGED CONTACT MAY CAUSE DRYING AND DEFATTING OF THE SKIN LEADING TO IRRITATION.

INHALATION: INHALATION OF VAPOR OR MIST MAY PRODUCE RESPIRATORY IRRITATION. INHALATION OF HIGH VAPOR CONCENTRATIONS MAY CAUSE LETHARGY, HEADACHE, DIZZINESS, OR NAUSEA.

EMERGENCY FIRST AID PROCEDURES

EYES: IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. CALL A PHYSICIAN.

SKIN: WASH PROMPTLY WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING AND SHOES. WASH CLOTHING BEFORE REUSE. DISCARD CONTAMINATED SHOES.

INGESTION: CALL A PHYSICIAN PROMPTLY. DO NOT INDUCE VOMITING. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

INHALATION: IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION, PREFERABLY MOUTH-TO-MOUTH. IF BREATHING IS DIFFICULT GIVE OXYGEN. CALL A PHYSICIAN.

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: FOR FIRE CONDITIONS OR EXPOSURE ABOVE TLV: WE NIOSH/MSHA APPROVED RESPIRATORS.

VENTILATION REQUIREMENTS: LOCAL EXHAUST IS RECOMMENDED.

PROTECTIVE GLOVES: IMPERVIOUS

EYE PROTECTION: WEAR SAFETY GLASSES

OTHER PROTECTIVE EQUIPMENT: EYE WASH FACILITY AND SAFETY SHOWER RECOMMENDED.

PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING/MELTING POINT: 212 TO 370

VAPOR PRESSURE (MM HG): 10 @ 77F

VAPOR DENSITY (AIR=1): ND

PERCENT VOLATILE BY VOLUME (%): ND

EVAPORATION RATE: ND

ph: ND

SPECIFIC GRAVITY (H20=1): 1.01-1.03 @ 77 F

SOLUBILITY IN WATER: COMPLETELY

APPEARANCE AND ODOR: MILKY WHITE EMULSION

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (METHOD USED): 154 F (TCC)

FLAMMABLE LIMITS: ND LOWER: ND UPPER: ND

EXTINGUISHING MEDIA: CO2, FOAM, DRY CHEMICAL.

SPECIAL FIRE FIGHTING PROCEDURES: WEAR NIOSH/MSHA APPROVED RESPIRATORS.

UNUSUAL FIRE AND EXPLOSION HAZARDS: NONE

REACTIVITY DATA

STABILITY: STABLE.

CONDITIONS CONTRIBUTING TO INSTABILITY: HEAT, SPARKS, OPEN FLAME AND FIRE.

INCOMPATIBILITY: STRONG OXIDIZERS

HAZARDOUS DECOMPOSITION PRODUCTS: (THERMAL) CO, CO2.

SPILL AND LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: REMOVE ALL SOURCES OF IGNITION. USE ADEQUATE VENTILATION TO PROMOTE DRYING. SOAK UP WITH ABSORBENT MATERIAL AND REMOVE TO CLOSED CONTAINERS. WASH AREA WITH MILD DETERGENT AND WATER.

WASTE DISPOSAL METHOD: DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL EPA REGULATIONS.

SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: AVOID BREATHING VAPOR OR MIST. USE WITH ADEQUATE VENTILATION. KEEP CONTAINER CLOSED. D NOT TAKE INTERNALLY. DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING. WASH THOROUGHLY AFTER HANDLING. IN CASE OF FIRE, USE WATER, FOAM C DRY CHEMICAL.

OTHER PRECAUTIONS: NONE.

REGULATORY INFORMATION

D.O.T.: COMBUSTIBLE LIQUID, N.O.S. (OVER 110 GALLONS)

PROPER SHIPPING NAME: COMBUSTIBLE LIQUID, N.O.S. (OVER 110 GALLONS)

HAZARD CLASS: COMBUSTIBLE LIQUID

UN/NA ID NUMBER: NA 1993.

HAZARD RATING SYSTEMS:
THIS INFORMATION IS FOR PEOPLE TRAINED IN NATIONAL PAINT & COATINGS ASSOCIATION'S (NPCA), HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS), NATIONAL FIRE PROTECTION ASSOCIATION (NFPA 704) IDENTIFICATION OF THE FIRE HAZARDS OF MATERIALS

	NPCA-HMIS	NFPA 704
HEALTH	1	1
FLAMMABILITY	1	1
REACTIVITY	0	0

KEY:
4 = Severe
3 = Serious
2 = Moderate
1 = Slight
0 = Minimal

TOXIC SUBSTANCES CONTROL ACT (TSCA): THIS PRODUCT AND/OR ALL THE INGREDIENTS CONTAINED IN THIS PRODUCT HAVE BEEN REGISTERED UNDER TH TOXIC SUBSTANCES CONTROL ACT.

R.C.R.A.: THIS PRODUCT DOES NOT MEET THE DEFINITIONS OR CONTAIN ANY SUBSTANCE APPEARING IN THE LISTINGS CONTAINED IN 40CFR261, "IDENTIFICATION AND LISTING OF HAZARDOUS WASTE."

COMMENTS

THE INFORMATION CONTAINED IN THIS MATERIAL SAFETY DATA SHEET IS BASED O THE NEAT OR CONCENTRATED PRODUCT AS SHIPPED.

THIS PRODUCT DOES NOT CONTAIN ANY MATERIAL SHOWN TO BE A CARCINOGEN BY THE NATIONAL TOXICOLOGY PROGRAM (NTP), THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC) OR OSHA.

THIS PRODUCT DOES NOT CONTAIN ANY MATERIAL WHICH IS SUBJECT TO THE ANNU REPORTING REQUIREMENTS UNDER SECTION 313 OR SARA, TITLE III. CONTACT TI EPA FOR INFORMATION REGARDING THE REPORTING SYSTEMS.

DATE PREPARED: December 3, 1993

THIS PRODUCT'S SAFETY INFORMATION IS PROVIDED TO ASSIST OUR CUSTOMER: I ASSESSING COMPLIANCE WITH HEALTH/SAFETY/ENVIRONMENTAL REGULATIONS. THE INFORMATION CONTAINED HEREIN IS BASED ON DATA AVAILABLE TO US AND IS BELIEVED TO BE ACCURATE. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY USE, OR ANY OTHER WARRANTY IS EXPRESSED OR TO BE IMPLIEI REGARDING THE ACCURACY OF THESE DATA, THE RESULTS TO BE OBTAINED FROM TH USE THEREOF, OR THE HAZARDS CONNECTED WITH THE USE OF THE PRODUCT. SINC THE USE OF THIS PRODUCT IS WITHIN THE EXCLUSIVE CONTROL OF THE USER, IT IS THE USER'S OBLIGATION TO DETERMINE THE CONDITIONS OF SAFE USE OF THE PRODUCT. SUCH CONDITIONS SHOULD COMPLY WITH ALL FEDERAL REGULATIONS CONCERNING THE PRODUCT. POWER GROUP ASSUMES NO LIABILITY FOR ANY INJURY OR DAMAGE, DIRECT OR CONSEQUENTIAL, RESULTING FROM THE USE OF THIS PRODUCT UNLESS SUCH INJURY OR DAMAGE IS ATTRIBUTABLE TO NEGLIGENCE ON TH PART OF POWER GROUP.

NA = NOT APPLICABLE, ND = NOT DETERMINED, < = LESS THAN, > = GREATER THA

Rohm and Haas Company
Independence Mall West
Philadelphia, PA 19105

HEALTH EMERGENCY	: 215-592-3000
SPILL EMERGENCY	: 215-592-3000
OTHER	: 800-424-9300
CHEMTREC	: 800-424-9300

MATERIAL SAFETY DATA SHEET

ATTENTION ! This product is being newly introduced by Rohm and Haas. Manufacturer's information is under continuing review. Updates will be supplied as appropriate.
- Good until January 31, 1994 -

PRODUCT IDENTIFICATION

Sodium Bromide Biocide

Product Code	:	72384
Key	:	875611-6
MSDS Date	:	08/21/92
Supersedes	:	09/02/91

Rohm and Haas Hazard Rating		Scale
Toxicity	1	4=EXTREME
Fire	0	3=HIGH
Reactivity	0	2=MODERATE
Special	-	1=SLIGHT
		0=INSIGNIFICANT

COMPONENT INFORMATION

No.		CAS REG NO.	AMT.(%)
1	Sodium bromide	7647-15-6	> 98
2	Sodium chloride	7647-14-5	< 2

EMERGENCY RESPONSE INFORMATION

FIRST AID PROCEDURES

Inhalation

Move subject to fresh air. Give artificial respiration if breathing has stopped.

Eye Contact

Flush eyes with a large amount of water for at least 15 minutes. Consult a physician if irritation persists.

Skin Contact

Wash affected skin areas thoroughly with soap and water. Remove and wash contaminated clothing thoroughly. Consult a physician if irritation persists.

Ingestion

If swallowed, give 2 glasses of water to drink. Never give anything by mouth to an unconscious person. Consult a physician.

MAYS CHEMICAL COMPANY, INC.
7760 E. 89th Street
Indianapolis, Indiana 46256
(317) 842-8722

Rohm and Haas Company
Independence Mall West
Philadelphia, PA 19105

PRODUCT: Sodium Bromide Biocide
KEY: 875611-6
DATE: 08/21/92

FIRE FIGHTING INFORMATION

Unusual Hazards

Combustion generates toxic fumes of the following:
- bromine gas - sodium oxide

Extinguishing Agents

Use extinguishing media appropriate for surrounding fire.

Personal Protective Equipment

Wear self-contained breathing apparatus (pressure-demand MSHA/NIOSH approved or equivalent) and full protective gear.

Special Procedures

Use water spray to cool containers exposed to fire. Minimize exposure. DO NOT breathe fumes. Contain run-off.

SPILL OR LEAK HANDLING INFORMATION

Personal Protection

Wear a MSHA/NIOSH approved (or equivalent) half-mask air-purifying respirator. Equip with dust and mist filters.
Wear gloves made of the following material:
- butyl rubber
- natural rubber

Additional personal protective equipment should include the following:
- safety glasses (ANSI Z87.1 or approved equivalent)

Procedures

Keep dust to a minimum. Transfer spilled material to suitable containers for recovery or disposal. See WASTE DISPOSAL Section for information regarding the disposal of contained spills.

HAZARD INFORMATION

HEALTH EFFECTS FROM OVEREXPOSURE

Primary Routes of Exposure

Inhalation
Skin Contact
Eye Contact

CONTINUED

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Philadelphia, PA 19105

CONTINUATION

Inhalation

Repeated or prolonged exposure can cause the following:
- irritation of nose and throat

Eye Contact

Material can cause the following:
- slight irritation

Skin Contact

Prolonged or repeated skin contact can cause the following:
- slight skin irritation

FIRE AND EXPLOSIVE PROPERTIES

Flash Point	Not Applicable
Auto-ignition Temperature	Not Applicable
Lower Explosive Limit	Not Applicable
Upper Explosive Limit	Not Applicable

REACTIVITY INFORMATION

Instability

This material is considered stable. However, avoid temperatures above 800C/1472F

Hazardous Decomposition Products

Thermal decomposition may yield the following:
- bromine gas - sodium oxide - hydrogen bromide

Hazardous Polymerization

Product will not undergo polymerization.

Incompatibility

Avoid contact with the following:
- acids - heavy metal salts - bromine trifluoride

ENVIRONMENTAL IMPACT

Environmental Toxicity

Mallard duck, Dietary LC50: > 5633 ppm
Bobwhite quail, Dietary LC50: 5633 ppm
Bobwhite quail, Oral LD50: 2250 mg/kg
Rainbow trout (Salmo gairdneri), 96 Hour LC50 Static: > 1000 mg/l
Bluegill sunfish (Lepomis macrochirus), 96 Hour LC50 Static: > 1000 mg/l

CONTINUE

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Independence Mall West
Philadelphia, PA 19105

ONTINUATION

Daphnia magna, 48 Hour EC50: > 1000 mg/l

All results are based on a nominal concentration of active ingredient.

ACCIDENT PREVENTION INFORMATION

COMPONENT EXPOSURE INFORMATION

Component Information

No.		CAS REG NO.	AMT.(%)
1	Sodium bromide	7647-15-6	> 98
2	Sodium chloride	7647-14-5	< 2

Exposure Limit Information

Component		ROHM AND HAAS		OSHA		ACGIH	
No.	Units	TWA	STEL	TWA	STEL	TLV	STEL
1	mg/m3	10	None	None	None	None	None
2		None	None	None	None	None	None

ERSONAL PROTECTION MEASURES

espiratory Protection

A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. None required if airborne concentrations are maintained below the TWA/TLV's listed in the COMPONENT EXPOSURE INFORMATION Section.

Up to 10 times the TWA/TLV: Wear a MSHA/NIOSH approved (or equivalent) half-mask, air-purifying respirator.

Up to 100 times the TWA/TLV: Wear a MSHA/NIOSH approved (or equivalent) full-facepiece, air-purifying respirator.

Above 100 times the TWA/TLV or Unknown: Wear a MSHA/NIOSH approved (or equivalent) self-contained breathing apparatus in the positive pressure mode,

OR,

MSHA/NIOSH approved (or equivalent) full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

Air-purifying respirators should be equipped with dust and mist filters.

CONTINUED

Rohm and Haas Company
Independence Mall West
Philadelphia, PA 19105

CONTINUATION

Eye Protection

Use safety glasses (ANSI Z87.1 or approved equivalent).

Hand Protection

Avoid skin contact. When using this substance, use skin protection.
- Butyl rubber
- Natural rubber

Gloves should be removed and replaced immediately if there is any indication of degradation or chemical breakthrough.

Other Protection

Use chemically resistant apron or other impervious clothing to avoid prolonged or repeated skin contact.

FACILITY CONTROL MEASURES

Ventilation

Use local exhaust ventilation with a minimum capture velocity of 150 ft/min. (0.75 m/sec.) at the point of dust or mist evolution. Refer to the current edition of Industrial Ventilation: A Manual of Recommended Practice published by the American Conference of Governmental Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.

Other Protective Equipment

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

STORAGE AND HANDLING INFORMATION

Storage Conditions

Store in a well ventilated area. Store in a dry area. Keep container tightly closed when not in use.

SUPPLEMENTAL INFORMATION

TYPICAL PHYSICAL PROPERTIES

Color	White
State	Crystalline solid
Odor Characteristic	Odorless
Viscosity	Not Applicable
Specific Gravity (Water = 1)	3.2
Vapor Density (Air = 1)	Not Applicable
Vapor Pressure	1 mm Hg @ 806°C/
Melting Point	775°C/1427°F

CONTINUED

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Philadelphia, PA 19105

CONTINUATION

Boiling Point	1390°C/2534°F
Solubility in Water	95 % @ 25°C/77°F
Evaporation Rate (BAc = 1)	Not Applicable

TOXICITY INFORMATION

Acute Data

Dermal LD50 - rabbit: > 2000 mg/kg
Oral LD50 - rat: 4200 mg/kg
Eye irritation - rabbit: slight irritation
Skin irritation - rabbit: practically non-irritating

Mutagenicity Data

Non-mutagenic

WASTE DISPOSAL

Procedure

For disposal, incinerate or landfill this material at a facility that complies with local, state, and federal regulations.

REGULATORY INFORMATION

WORKPLACE CLASSIFICATIONS

This product is considered non-hazardous under the OSHA Hazard Communication Standard (29CFR 1910.1200).

This product is not a 'controlled product' under the Canadian Workplace Hazardous Materials Information System (WHMIS).

TRANSPORTATION CLASSIFICATIONS

US DOT Hazard Class . . . . . NONREGULATED

EMERGENCY PLANNING & COMMUNITY RIGHT-TO-KNOW (SARA TITLE 3)

Section 311/312 Categorizations (40CFR 370)

This product is not a hazardous chemical under 29CFR 1910.1200, and therefore is not covered by Title III of SARA.

Section 313 Information (40CFR 372)

This product does not contain a chemical which is listed in Section 313 above de minimis concentrations.

Rohm and Haas Company
Independence Mall West
Philadelphia, PA 19105

CERCLA INFORMATION (40CFR 302.4)

Releases of this material to air, land, or water are not reportable to the Nationa Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to state and local emergency planning committees under the Superfund Amendments and Reauthorization Act (SARA) Title II Section 304.

RCRA INFORMATION

When a decision is made to discard this material as supplied, it is classified as : RCRA non-hazardous waste.

CHEMICAL CONTROL LAW STATUS

This product is subject to regulation under the US Federal Insecticide, Fungicide an Rodenticide Act (FIFRA) and is therefore exempt from U.S. Toxic Substances Contr Act (TSCA) inventory listing requirements.

ABBREVIATIONS:

ACGIH = American Conference of Governmental Industrial Hygienists
OSHA = Occupational Safety and Health Administration
TLV = Threshold Limit Value
PEL = Permissible Exposure Limit
TWA = Time Weighted Average
STEL = Short-Term Exposure Limit
BAc = Butyl acetate
▌ Bar denotes a revision from previous MSDS in this area.

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Mays Chemical Company, Inc.

7760 EAST 89TH STREET - P.O. BOX 50915
INDIANAPOLIS, INDIANA 46250-0915
(317) 842-8722
(317) 576-9630 (FAX)

MATERIAL SAFETY DATA SHEET
SODIUM HYPOCHLORITE 12.5%

Rowell Chemical Corporation
15 Salt Creek Ln. Suite 205
Hinsdale, Il. 60521

For information, please contact the Rowell Chemical facility in Willow Springs at (708) 839-1707 or the Rowell Chemical Corporate office in Hinsdale, IL. at (630) 920-8833.

In the event of a transportation emergency, **Call CHEMTREC: (800) 424-9300**

Section I - **Identification**

Trade Name:	HYPO 150
Chemical Name:	Sodium Hypochlorite Solution
Formula:	NaOCl
DOT Shipping Name:	Hypochlorite Solution
DOT Hazard Class:	Corrosive Material
UN/NA Number:	UN 1791
DOT Label:	Corrosive
DOT Placard:	Corrosive
Reportable Quantity:	Sodium Hypochlorite: 100 lbs/45.4 Kg
CAS Number:	7681-52-9
NFPA Designation:	There is no NFPA designation for sodium hypochlorite.

Section II - **Hazardous Ingredients**

Material	% By Weight	CAS No.	TLV/PEL
Sodium Hypochlorite	12.5-15.6	7681-52-9	NA
Sodium Hydroxide	0.2-2.0	1310-73-2	2 mg/m^3
Inert ingredients	Balance	7732-18-5	NA

Carcinogenicity Status: NTP-No, IARC-No, OSHA-No.

Section III - **Physical Data**

Appearance:	Yellow-green liquid
Boiling Point:	219 °F (104 °C) for 12.5% NaOCl by wt.
Freezing Point:	-11 °F (-24 °C) for 12.5% NaOCl by wt.
Odor:	Chlorine
pH:	12.5 - 13.5 S.U.
Viscosity (Cs):	2.15 @ 23 °C for 12.5% NaOCl by wt.
Percent Volatile by Volume:	Variable - water plus products of decomposition
Solubility in Water:	Complete
Specific Gravity (Water=1):	1.224 @ 20 oC for 14.15% NaOCl by wt.
Vapor Pressure (mm Hg):	Variable - water plus products of decomposition

*maximum usage level - 200 Mg/l

Section IV - **Fire And Explosion Data**

Flash Point (Test method): Not applicable
Auto Ignition Temperature: Not applicable
Flammable Limits In Air (Volume %): Not applicable
Extinguishing Media: Flood with water or carbon dioxide (CO_2)
Special Fire Fighting Procedures: Use National Institute of Occupational Safety & Health (NIOSH) certified gas mask with canister for chlorine or use self-contained breathing apparatus. Unusual fire and explosion hazards: material is strong oxidizer. Contact with combustibles may initiate or promote combustion. Acid and heat accelerate combustion Decomposition products may include chlorine.

Section V - **Health Hazard Information**

Medical conditions aggravated by exposure:
No aggravation of a medical condition has been found to be caused by sodium hypochlorite.

Routes of Exposure:
Inhalation: Fumes from spills are very irritating to mucous membranes. Very little hazard from properly stored solution.
Skin Contact: Severe irritant, reddening of skin, skin damage.
Skin Absorption: Same as skin contact.
Eye Contact: Severe irritant; corrosive.
Ingestion: Causes irritation of membranes of the mouth, throat, and stomach pain and possible ulceration. LD50 (oral, rat) for 12.5% NaOCl is above 5 g/kg body weight.

Effects of Overexposure:

Acute Overexposure:
Swallowing: See "ingestion" under routes of exposure.
Skin Contact: Irritant, reddening of skin, skin damage.
Inhalation: Fumes from spills are very irritating to mucous membranes.
Eye Contact: Extreme irritant, corrosive.

Chronic Overexposure:
Eye: Can cause damage.
Skin: Can cause damage, chemical burn.

Emergency And First Aid Procedures:
Eyes: Immediately flush with water for at least fifteen (15) minutes. Get medical attention.
Skin: Remove soaked clothes. Wash with plenty of soap and water for at least fifteen (15) minutes. Inhalation: Remove to fresh air. Call physician, if exposure is severe.
Ingestion: If conscious, drink large quantities of milk, or gelatin solution, or if these are not available, drink large quantities of water. Do not give vinegar or other acids. Do not induce vomiting. Get prompt medical attention.

Section VI - **Reactivity Data**

Conditions Contributing to Instability:
Solutions are fairly stable in concentrations below 10%. Stability decreases with concentration, light, heat, fire, decrease in pH, metallic impurities such as nickel, cobalt, copper, and iron. Naturally decomposes with age.

Incompatibility:
Acids, alcohols, amines, ammonia, chlorinated isocyanurates, combustibles, cyanides, detergents, ethers, hydrocarbons, oxidizable materials, reducing agents. Corrosive to most metals.

Decomposition Products:
Contact with acid releases chlorine gas: natural decomposition product is oxygen. Thermal decomposition, or burning, may produce hydrochloric acid. Contact with ammonia may release hazardous gases. Other decomposition products are hypochlorous acid, sodium chlorate, sodium chloride.

Conditions Contributing To Hazardous Polymerization:
None, does not polymerize.

*maximum usage level - 200 Mg/l

Section VII - **Spill Or Leak Procedures**

Steps To Be Taken If Material Is Released Or Spilled:
Contain in diked area. Neutralize with sodium bisulfite or ferrous salt solution. Place neutralized material in DOT specification approved container(s). Flush area with large amounts of water. Comply with all Federal, State and Local reporting requirements. Clean up personnel must wear proper protective clothing.

Waste Disposal:
Contact Federal, State, County and Local environmental regulators for guidance regarding proper disposal.

Section VIII - **Special Protection Information**

Ventilation Requirements:
Local Exhaust is recommended.

Specific Personal Protective Equipment:
Respiratory: Use National Institute of Occupational Safety and Health (NIOSH) or Mine Safety and Health Administration (MSHA) approved respirator appropriate for this product when permissible exposure limits are exceeded.
Eyes: Use chemical goggles and face shield.
Gloves: Use rubber or neoprene gloves.
Other: Use rubber splash apron and rubber boots. Safety shower and eye wash fountain should be located nearby.

Section IX- **Special Precautions**

Precautions To Be Taken In Handling:
Danger: This product is corrosive and may cause severe skin irritation or chemical burns to broken skin. Causes eye damage. Do not get in eyes, on skin or on clothing. Wear goggles and face shield and rubber gloves when handling this product. Wash after handling. Avoid breathing vapors. Vacate poorly ventilated areas as soon as possible. Do not return until odors have dissipated.

Proper Storage And Disposal Requirements
Store in a cool, dry area away from direct sunlight. In case of spill, floor area with large quantities of water. Rinse empty container thoroughly with water and either return to manufacturer or discard by placing in trash collection or burning in an approved landfill. Product or rinseate that cannot be used should be diluted with water and disposed of in a sanitary sewer. Do not contaminate food, or feed by storage, disposal or cleaning of equipment. Store in an upright position.

Other Precautions:
Strong Oxidizing Agent: Mix only with according to label directions. Mixing this product with gross filth such as feces, urine, etc. or with ammonia, acids, detergents or other chemicals may release hazardous gases irritating to eyes, lungs and mucous membranes.

Additional Regulatory Concerns:
EPA: May not be used for disinfection or sanitizing without prior approval by EPA/ Repackagers must obtain EPA registration and establishment numbers.
FIFRA: This product is regulated under the Federal Insecticide, Fungicide, and Rodenticide Act. (FIFRA) if used as a disinfectant or sanitizer.
TSCA: Included in the Toxic Substances Control Act (TSCA) Inventory of chemical Substances if not covered by FIFRA.

MSDS Prepared By:
Rowell Chemical Corporation
15 Salt Creek Ln. Suite 205
Hinsdale, Il. 60521
(630) 920-8833

Issue Date: 10/23/93
Revision Date: 10/23/98 SMG
Printed on: 10/23/98

The information herein is given in good faith but no warranty, expressed or implied is made

*maximum usage level - 200 Mg/l

ATTENTION: Safety and Industrial Hygiene advises users to review the intended use of this information with his/her supervisor or Safety and Industrial Hygiene advisor.

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Contents for this MSDS

01 - PRODUCT IDENTIFICATION

PRODUCT NAME: SODIUM PHOSPHATE, TRIBASIC, 12-HYDRATE
FORMULA: $NA_3PO_4\ 12H_2O$
FORMULA WT: 380.12
CAS NO.: 10101-89-0
NIOSH/RTECS NO.: TC9575000
COMMON SYNONYMS: TRISODIUM PHOSPHATE, 12-HYDRATE; PHOSPHORIC ACID, TRISODIUM SALT, 12-HYDRATE
PRODUCT CODES: 3840,5349,3836

- STANDARD PHRASE

CHEMTREC # (800) 424-9300
NATIONAL RESPONSE CENTER # (800) 424-8802
J. T. BAKER INC.
222 RED SCHOOL LANE
PHILLIPSBURG, NJ 08865
24-HOUR EMERGENCY TELEPHONE -- (201) 859-2151

EFFECTIVE: 09/14/87
REVISION #03

PRECAUTIONARY LABELLING

HEALTH	- 2	MODERATE
FLAMMABILITY	- 0	NONE
REACTIVITY	- 1	SLIGHT
CONTACT	- 2	MODERATE

HAZARD RATINGS ARE 0 TO 4 (0 = NO HAZARD; 4 = EXTREME HAZARD).

LABORATORY PROTECTIVE EQUIPMENT

SAFETY GLASSES; LAB COAT; VENT HOOD; PROPER GLOVES

PRECAUTIONARY LABEL STATEMENTS

WARNING
CAUSES IRRITATION
HARMFUL IF SWALLOWED OR INHALED
AVOID CONTACT WITH EYES, SKIN, CLOTHING.
AVOID BREATHING DUST. KEEP IN TIGHTLY CLOSED CONTAINER. USE WITH ADEQUATE VENTILATION. WASH THOROUGHLY AFTER HANDLING.

SAF-T-DATA(*) STORAGE COLOR CODE: ORANGE (GENERAL STORAGE)

02 - HAZARDOUS COMPONENTS

COMPONENT	%	CAS NO.
SODIUM PHOSPHATE, TRIBASIC, 12-HYDRATE	98-100	10101-89-0

03 - PHYSICAL DATA

BOILING POINT: N/A

VAPOR PRESSURE(MM HG): N/A

MELTING POINT: N/A

VAPOR DENSITY(AIR=1): N/A

SPECIFIC GRAVITY: 1.62
(H2O=1)

EVAPORATION RATE: N/A
(BUTYL ACETATE=1)

SOLUBILITY(H2O): APPRECIABLE (MORE THAN 10 %) % VOLATILES BY VOLUME: 0

APPEARANCE & ODOR: WHITE OR COLORLESS, CRYSTALLINE SOLID. ODORLESS.

04 - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (CLOSED CUP N/A

FLAMMABLE LIMITS: UPPER - N/A % LOWER - N/A %

FIRE EXTINGUISHING MEDIA
USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING FIRE.

SPECIAL FIRE-FIGHTING PROCEDURES
FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN POSITIVE PRESSURE MODE. MOVE CONTAINERS FROM FIRE AREA IF IT CAN BE DONE WITHOUT RISK. USE WATER TO KEEP FIRE-EXPOSED CONTAINERS COOL.

UNUSUAL FIRE & EXPLOSION HAZARDS
CLOSED CONTAINERS EXPOSED TO HEAT MAY EXPLODE.

TOXIC GASES PRODUCED
PHOSPHORUS OXIDE

05 - HEALTH HAZARD DATA

TLV, STEL, AND PEL VALUES HAVE NOT BEEN ESTABLISHED FOR THIS PRODUCT.

TOXICITY:	LD50 (ORAL-RAT) (MG/KG)	- 7400
	LD50 (IPR-MOUSE) (MG/KG)	- 430

CARCINOGENICITY: NTP: NO IARC: NO Z LIST: NO OSHA REG: NO

EFFECTS OF OVEREXPOSURE
INHALATION OF DUST MAY CAUSE IRRITATION TO UPPER RESPIRATORY TRACT.
CONTACT WITH SKIN OR EYES MAY CAUSE SEVERE IRRITATION OR BURNS.
INGESTION MAY CAUSE NAUSEA, VOMITING AND DIARRHEA.
INGESTION MAY CAUSE IRRITATION AND BURNING TO MOUTH AND STOMACH.

TARGET ORGANS
EYES, SKIN

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE
NONE IDENTIFIED

ROUTES OF ENTRY
INGESTION, INHALATION, EYE CONTACT, SKIN CONTACT

EMERGENCY AND FIRST AID PROCEDURES
CALL A PHYSICIAN.
IF SWALLOWED, IF CONSCIOUS, GIVE LARGE AMOUNTS OF WATER. INDUCE VOMITING.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES.
WASH CLOTHING BEFORE RE-USE.

06 - REACTIVITY DATA

STABILITY: STABLE HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: HEAT

INCOMPATIBLES: STRONG ACIDS, IRON AND OTHER HEAVY METALS

DECOMPOSITION PRODUCTS: OXIDES OF PHOSPHORUS

07 - SPILL AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE
WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. WITH CLEAN SHOVEL, CAREFULLY PLACE MATERIAL INTO CLEAN, DRY CONTAINER AND COVER; REMOVE FROM AREA. FLUSH SPILL AREA WITH WATER.

DISPOSAL PROCEDURE
DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATIONS.

08 - PROTECTIVE EQUIPMENT

VENTILATION: USE ADEQUATE GENERAL OR LOCAL EXHAUST VENTILATION TO KEEP FUME OR DUST LEVELS AS LOW AS POSSIBLE.

RESPIRATORY PROTECTION: NONE REQUIRED WHERE ADEQUATE VENTILATION CONDITIONS EXIST. IF AIRBORNE CONCENTRATION IS HIGH, USE AN APPROPRIATE RESPIRATOR OR DUST MASK.

EYE/SKIN PROTECTION: SAFETY GOGGLES, UNIFORM, RUBBER GLOVES ARE RECOMMENDED.

09 - STORAGE AND HANDLING PRECAUTIONS

SAF-T-DATA(*) STORAGE COLOR CODE: ORANGE (GENERAL STORAGE)

SPECIAL PRECAUTIONS
KEEP CONTAINER TIGHTLY CLOSED. SUITABLE FOR ANY GENERAL CHEMICAL STORAGE AREA.

10 - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

DOMESTIC (D.O.T.)

PROPER SHIPPING NAME ORM-E, SOLID, N.O.S. (SODIUM PHOSPHATE, TRIBASIC)
HAZARD CLASS ORM-E

UN/NA	NA9188
LABELS	NONE
REPORTABLE QUANTITY	5000 LBS.

INTERNATIONAL (I.M.O.)

PROPER SHIPPING NAME	CHEMICALS, N.O.S. (NON-REGULATED)

(*) AND (R) DESIGNATE TRADEMARKS.
N/A = NOT APPLICABLE OR NOT AVAILABLE

- STANDARD PHRASE
THE INFORMATION PUBLISHED IN THIS MATERIAL SAFETY DATA SHEET HAS BEEN COMPILED FROM OUR EXPERIENCE AND DATA PRESENTED IN VARIOUS TECHNICAL PUBLICATIONS. IT IS THE USER'S RESPONSIBILITY TO DETERMINE THE SUITABILITY OF THIS INFORMATION FOR THE ADOPTION OF NECESSARY SAFETY PRECAUTIONS. WE RESERVE THE RIGHT TO REVISE MATERIAL SAFETY DATA SHEETS PERIODICALLY AS NEW INFORMATION BECOMES AVAILABLE. J.T.BAKER INC. MAKES NO WARRANTY OR REPRESENTATION ABOUT THE ACCURACY OR COMPLETENESS NOR FITNESS FOR PURPOSE OF THE INFORMATION CONTAINED HEREIN.

MATERIAL SAFETY DATA SHEET
PRODUCT: SULFURIC ACID

SECTION 1 - MANUFACTURER INFORMATION

MANUFACTURER/DISTRIBUTOR:

PVS CHEMICALS, INC. (ILLINOIS)
12260 S. Carondolet Ave.
Chicago, Illinois 60633
telephone: (312) 933-8800 (product information and emergencies)
fax: (312) 933-0957

*****FOR TRANSPORTATION EMERGENCY ONLY, DAY OR NIGHT, CALL*****
*****CHEMTREC, 1-800-424-9300*****

PREPARATION/REVISION DATE: 12-1-92
CONTACT: Manager of Environmental Affairs

SECTION 2 -- PRODUCT IDENTITY/HAZARDOUS INGREDIENTS INFORMATION

Product name: Sulfuric Acid
Chemical name/synonyms: Sulfuric Acid, Oil of Vitriol
Chemical formula: H_2SO_4
CAS number: 7664-93-9
Product Code: N/A

HAZARDOUS INGREDIENTS: Yes

Component	CAS No.	% by wt.
Sulfuric Acid	7664-93-9	75-100%

Exposure limits:

OSHA PEL:	1 mg/m^3, 8-hr TWA
ACGIH TLV:	1 mg/m^3, 8-hr TWA
	3 mg/m^3, STEL
	80 mg/m^3, IDLH

OTHER: This is a toxic chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

NON-HAZARDOUS INGREDIENTS: Yes

Component	CAS No.	% by wt.
Water	7732-18-5	1-25%

OSHA 29 CFR 1910.1200 EVALUATION: Hazardous

SECTION 3 -- PHYSICAL/CHEMICAL CHARACTERISTICS

APPEARANCE AND ODOR: Clear to slightly cloudy, oily liquid; Odorless to slightly pungent.
BOILING POINT:77.7%=379.5°F;93%=535°F;96%=586°F;98%=621°F;99%=590°F
FREEZING POINT:77.7%=11.5°F;93%=-21°F;96%=7°F;98%=30°F;99%=40°F
VAPOR PRESSURE (REID): 93.2% = 0.0016 mm Hg; 98% = 0.002 mm Hg
VAPOR DENSITY (AIR = 1): no information
SPECIFIC GRAVITY (WATER = 1): 77.7% = 1.706; 93.2% = 1.835; 96% = 1.843; 98% = 1.844; 99% = 1.842
PERCENT VOLATILE BY WEIGHT: no information
EVAPORATION RATE (BUTYL ACETATE = 1): <1
pH: <1
SOLUBILITY IN WATER: Completely miscible

SECTION 4 -- FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (CLOSED CUP METHOD): Not flammable. May ignite combustible materials.

FLAMMABLE LIMITS IN AIR, % BY VOLUME: N/A
LOWER: N/A UPPER: N/A

EXTINGUISHING MEDIA: Use dry chemical or CO_2 base fire extinguishers to fight surrounding fire. Do not use water on acid itself. Apply from farthest possible distance.

SPECIAL FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus and full protective clothing. Cool exterior of storage tanks.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Violent reaction with water. Evolution of explosive hydrogen gas on contact with most metals. Will react with organic material with evolution of heat and dense white fumes.

SECTION 5 -- REACTIVITY DATA

STABILITY: Stable

HAZARDOUS POLYMERIZATION: will not occur

INCOMPATIBILITY (CONDITIONS AND MATERIALS TO AVOID): Material is stable when properly handled. Reactive with materials such as metals, metal oxides, hydroxides, nitrates, amines, carbonates and other alkaline materials. Reactions can generate a great deal of heat as does the dilution of acid with water. Concentrated acid is a strong oxidizing agent. May cause ignition of combustible materials on contact with generation of sulfur dioxide fumes. Avoid open flames or sparks.

HAZARDOUS DECOMPOSITION PRODUCTS: Explosive hydrogen gas is generated by the action of acid on most metals and may accumulate in metal containers. Releases Sulfur Dioxide at extremely high temperatures.

SECTION 6 -- HEALTH HAZARD DATA

PRIMARY ROUTES OF ENTRY: Inhalation, ingestion, direct contact

HEALTH EFFECTS (ACUTE AND CHRONIC):

INHALATION: Inhalation of concentrated vapor or mist may damage respiratory tract.

INGESTION: Swallowing may be fatal.

DIRECT CONTACT: Contact with liquid, mist, or vapor can cause immediate irritation or corrosive burns to all human tissue. Severity of the burn is generally determined by the concentration of the solution and duration of exposure.

EYE CONTACT: Contact with eyes may result in permanent visual loss unless removed quickly by thorough irrigation with water.

TOXICITY DATA (ANIMAL):
Oral LD_{50}, rat: 2140 mg/kg
Skin and eye irritation (rabbit): (FHSA)
Corrosive
Inhalation 1 hour LC_{50}, rat: 347 ppm

The International Agency of Research on Cancer (IARC) has classified "strong inorganic acid mists containing sulfuric acid" as a Category 1 carcinogen, a substance that is "carcinogenic to humans". This classification is for inorganic acid mists only and does not apply to sulfuric acid or sulfuric acid solutions.

CARCINOGENS (NTP, IARC, OR OSHA): None of the components of this material is listed by IARC, NTP, OSHA, or ACGIH as a carcinogen.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Repeated skin contact with dilute solutions may cause dermatitis. May cause dental erosion.

SECTION 7 -- FIRST AID

INHALATION: Remove victim to fresh air. If not breathing, perform artificial respiration. Get medical attention.

INGESTION: Drink copious amounts of water or milk. Do not induce vomiting. Get immediate medical attention. Never give anything by mouth to an unconscious person.

DIRECT CONTACT: Wipe off excess. Flush immediately with water for at least 15 minutes while removing contaminated clothing. Get immediate medical attention. Wash clothing before re-use. Destroy contaminated shoes.

DIRECT EYE CONTACT: Flush immediately with water for at least 15 minutes. Forcibly hold eyelids apart to ensure complete irrigation of eye/lid tissue. Get immediate medical attention.

SECTION 8 -- PRECAUTIONS FOR SAFE STORAGE, HANDLING AND USE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store away from sources of ignition. Do not add water to concentrated acid. When diluting, slowly add acid to water while stirring, to avoid spattering, boiling, and eruption. Keep container closed and protect from contact with water. Protect container from physical damage. Do not strike containers or fittings with tools. Wash thoroughly after handling. Emptied container will retain vapor and product residue.

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Utilize full protective clothing, including boots and protective equipment. Contain spill in order to prevent contamination of sewage system or waterway. Pump into marked containers for reclamation or disposal. If possible, neutralize on a dry basis with suitable alkali such as lime or soda ash; then flush with water in accordance with applicable regulations.

WASTE DISPOSAL METHODS: Dispose of spilled, neutralized, or waste product, contaminated soil and other materials in accordance with all local, state and federal regulations.

SECTION 9 -- EXPOSURE CONTROL INFORMATION

VENTILATION: Provide ventilation to control exposure levels below airborne exposure limits. Use local exhaust ventilation. Reference NFPA Standard 91 for design of exhaust systems.

RESPIRATORY PROTECTION: Use NIOSH/MSHA approved, full face respirator with canister approved for sulfuric acid vapor and mist. Consult respirator manufacturer to determine appropriate equipment. If concentrations are high or unknown, use self-contained breathing apparatus.

PROTECTIVE GLOVES: Wear impervious rubber gloves.

EYE PROTECTION: Wear splashproof chemical safety goggles. Eyewash fountains recommended in all storage and handling areas. Do not wear contact lenses.

OTHER PROTECTIVE EQUIPMENT: Wear protective clothing to prevent skin contact. Full face shield and rubber footwear should be used. Acid-resistant hood and full body suit recommended. Safety shower recommended in all storage and handling areas.

WORK/HYGIENIC PRACTICES: Avoid breathing fumes. Use gloves when handling. Remove and change contaminated clothing immediately.

OTHER PRECAUTIONS: None

SECTION 10 -- REGULATORY INFORMATION

DOT:
Proper shipping name: Sulfuric acid
Hazard Class: 8
UN Number: UN1830
Packing Group: II

SARA TITLE III HAZARD CLASSIFICATIONS:
ACUTE: Yes
CHRONIC: Yes
FIRE: No
PRESSURE: No
REACTIVITY: Yes

Sulfuric Acid is a toxic chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

OTHER RATINGS:
(hazard index key: 4=severe, 3=serious, 2=moderate, 1=slight, 0=minimal)
HMIS: Health=3, Flammability=0, Reactivity=2
NFPA: Health=3, Flammability=0, Reactivity=2

OTHER INFORMATION:
SULFURIC ACID:
CERCLA: RQ = 1000 lbs.
SARA TPQ: 1000 lbs.
WHMIS: 1%